



**ELCA**

*We make it work.*

# Internship report

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# Resumen del proyecto

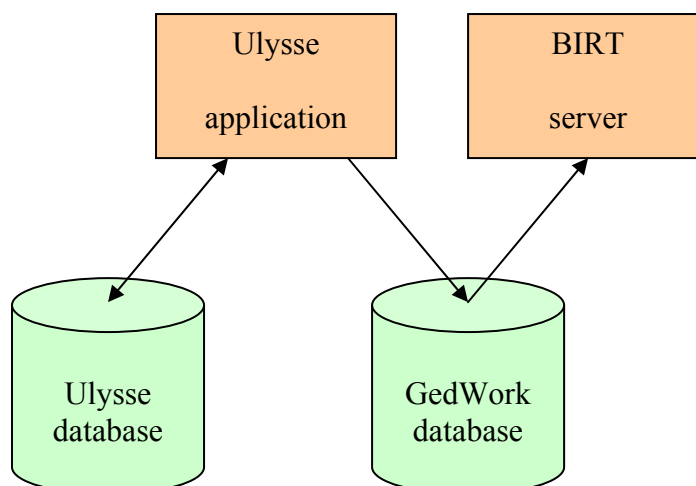
La empresa para la que hice el proyecto de fin de carrera es ELCA Informatique, una empresa suiza que desarrolla aplicaciones informáticas. Estaba integrado en un equipo que estaba desarrollando una aplicación para “Les Retraites Populaires”, una compañía de seguros de vida ubicada en Lausanne.

Ulysse, la aplicación en la que trabajé durante mi proyecto, gestionaba las ofertas de seguros de vida, es decir el dossier de los posibles futuros clientes. Esta aplicación permitía a los comerciales de “Les Retraites Populaires” hacer proposiciones de seguros de vida y gestionar la evolución de las personas a las que habían contactado (posibles futuros clientes de un seguro de vida). Una vez una persona contrataba un seguro de vida todo su dossier (expediente) pasaba a otra aplicación informática (Athena).

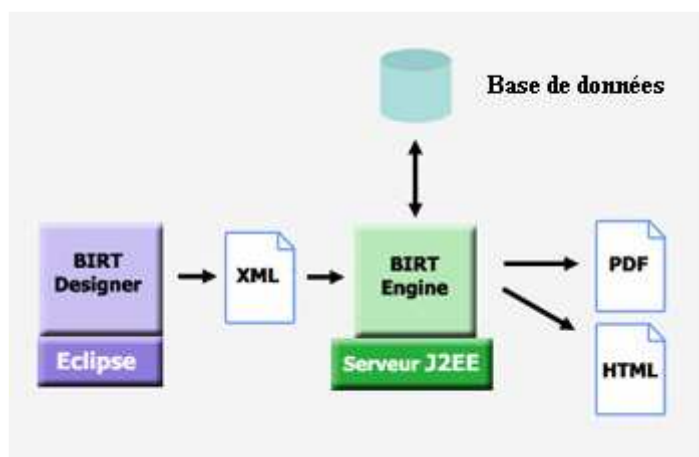
Para hacer una proposición de seguro de vida hay que introducir en la aplicación la información del producto que ha seleccionado el cliente así como detalles de la persona que estará asegurada (edad, sexo...). Una vez introducidos estos datos la aplicación calcula las prestaciones (renta) a las que da derecho el producto seleccionado (en función del dinero invertido por el cliente, la edad a la que se empiecen a cobrar las rentas, sexo de la persona asegurada...). Después de este paso se pueden generar automáticamente (GED – Gestión Electrónica de Documentos) varios documentos: proposición de seguro de vida (documento que detalla las diferentes prestaciones del producto seleccionado) y una demanda de admisión (documento que el cliente tiene que firmar para adherir un seguro). Yo estaba involucrado en éste último paso, generación automática de documentos.

Para generar los documentos habían dos etapas principales: extracción de la información y generación del documento mediante la herramienta BIRT.

La primera etapa (extracción de la información) consistía en ir a buscar la información necesaria para generar cada documento en la aplicación Ulysse e introducir esta información en otra base de datos (GedWork) para poder generar los documentos a continuación. La siguiente imagen ilustra este proceso:



La segunda etapa (generación del documento mediante la herramienta BIRT) consistía en definir unas plantillas que definían el contenido de cada documento e indicar donde se tenía que ir a buscar la información dinámica del documento en la base de datos GedWork. Un servidor BIRT utiliza estas plantillas para extraer la información necesaria en la base de datos GedWork y generar el documento. La siguiente imagen ilustra este proceso:



Este proyecto me ha permitido descubrir el trabajo de desarrollador informático así como adentrarme en el mundo complejo de los seguros de vida.

# Company presentation

I did my minor internship at ELCA, a Swiss IT services company headquartered in Lausanne. Its main activity is developing specific software for other companies. I have considered relevant to include some extracts from the website [www.elca.ch](http://www.elca.ch) in order to have a global overview of the company activities.

“ELCA has helped its clients to leverage information technology innovations successfully for 40 years. Bridging the gap between business and IT, ELCA believes that new technologies will create real value for companies who consider these opportunities to be strategic.

ELCA proposes original solutions and services on a European basis. Ranging from consulting to software development and product integration, we deliver value by combining technology and design. We employ our creativity and professionalism in order to provide you with effective solutions, accurate answers and honest responses.

Headquartered in Lausanne, Switzerland, ELCA generated revenues of CHF 63 million for the 12 months ended December 31, 2007, and currently has a workforce of more than 490 employees, of whom more than 400 are highly skilled engineers.”

“ELCA's core business is systems integration and development of specific software solutions for medium size and larger corporations and government agencies. Business consulting and operations expertise enable us to deliver end-to-end project services and guarantee a high level of customer satisfaction for business and IT clients. We are known for the quality of our work, we carry out most of our projects for a fixed price and deadline, and we have been very successful in leading projects at the right tempo even under rigorous time-to-market constraints.”

“ELCA has been active in various industries for many years. In-depth understanding has been developed especially for banking, insurance, government, healthcare, ticketing and transportation.”

# Internship description

I started my internship the 1<sup>st</sup> of April and will finish the 31<sup>st</sup> of July.

Interns at ELCA generally do not do the same job as regular employees, as the CEO does not want to give the impression that he takes interns to have cheap workforce. The interest of taking interns for him is to make contact with possible future employees and to “test” interns to see if they will be able to perform well in their future job.

This summer I did an internship at ELCA, but as I described in the previous paragraph I did not do the same job as regular employees. It is for this reason that I decided to do another internship in the same company in my third year: I asked to do the same during my internship as regular employees do, as the internship I did this summer did not allow me to see if I would enjoy working at ELCA.

Every computer software project has three main stages: specification, implementation and testing.

The specification consists in understanding well what the customer wants the software application to do and to write down a document that describes all this. For example imagine that SNCF wants to make a new website to make train reservations, the specification would consist in describing how the website works, i.e. a paragraph of the specification could be “a user should be able to choose the date when he wants to travel and when he clicks in the button “search”, all the trains for the selected itinerary should appear ordered by date (the first train that should appear is the one that has a departure time closest to the one selected by the user)”. The specification is a very important stage in a computer software project as once the customer (SNCF in the example) has approved the document it is what is used to see if the application delivered is correct. A very common problem in software projects is that the customer does not get exactly the application he expected, not because the engineers did not do their job properly but because the client did not take enough time to verify the specification before approving it. In conclusion, we could say that the specification is the contract between the customer and the computer software company that defines what the application must do.

The next stage is the implementation. It consists in making the application, i.e. write the code to do what is described in the specification.

The final stage is testing the application. The software is tested in order to see if it works properly and the problems encountered (bugs) are corrected, i.e. the code is modified in order to correct the errors.

During my internship I was involved in the final stage: testing. Most Information Technologies companies decide to introduce their new workers at this stage of the project because it allows them to get an insight of the project (understand how the code works) little by little.

The customer of the project I worked for was “Les Retraites Populaires”, one of the largest life insurance companies in Switzerland. In Switzerland every month a certain percentage of someone's wage is given to a private life insurance company in order to have a pension for retirement. It is not the government that takes care of people's retirement but private insurance companies. There is a very strict regulation in the type of investments that a life insurance company can make in order to reduce risks (and therefore also yield). It would not be acceptable that somebody would not have a retirement pension just because the life insurance company in charge has taken too many risks.

"Les Retraites Populaires" invests in four main domains:

- Real estate: properties are bought in order to rent them to other people. In some cases a property belonging to "Les Retraites Populaires" can be sold, but this does not happen very often as the intention is not to speculate in a rise of property prices, but to earn money with the rents.
- Mortgage loans: when somebody wants to buy a house he can ask for a loan. An employee of "Les Retraites Populaires" gives a value to the house. If the loan that has been asked is lower than the value of the house, the loan might be accepted, otherwise the loan is rejected. The second and final step in order to approve a loan is to study the income of the person that has asked the loan to check if he will be able to pay the mortgage. The loan is accepted if the two conditions are satisfied. Mortgage loans are considered to be a safe investment, as in case that the person that has asked the loan is unable to pay the mortgage the property can be sold in order to get back the capital (in finance this is called a collateral). Despite this, we must remain that one of the reasons of the current financial crisis is that as everybody considered mortgage loans to be very secure (because of the collateral) this loans were given too easily to everybody, without having a close look to the income of the borrowers. In "Les Retraites Populaires", a life insurance company that can not take too many risks, the income situation is very much taken into account.
- Bonds and other kinds of debt securities: there is a finance department in charge of the bond portfolio, only bonds with a decent rating are acquired in order not to take too many risks.
- Equity: a very small portion of the global portfolio is invested in equity, as it is a very volatile and risky investment. There is a finance department in charge of the equity portfolio.

The weight of each activity in the global portfolio is approximately 30% real estate, 30% mortgage loans, 30% bonds and 10% equity.

The main departments in "Les Retraites Populaires" are:

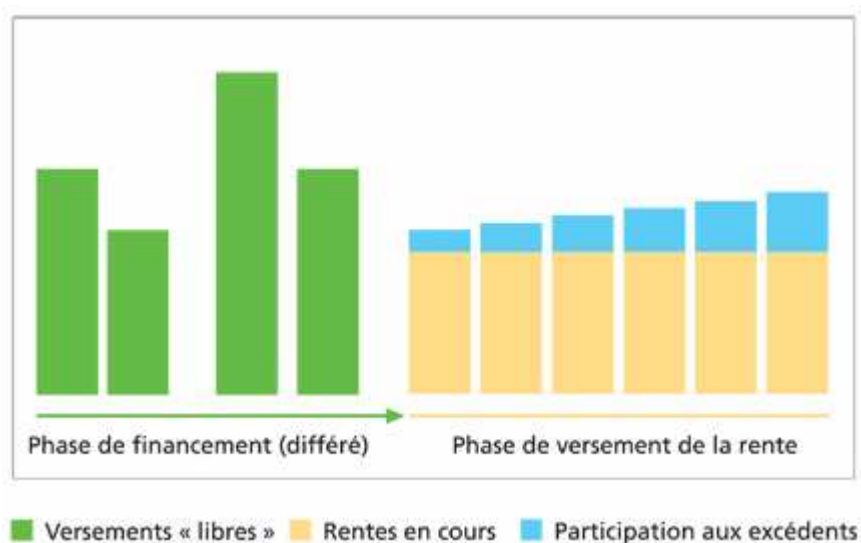
- Finance department: already described above.
- IT department: its main responsibility is the maintenance of software applications. Most of the development of new applications is outsourced to IT services companies, such as ELCA, the company in which I am doing my internship.
- Marketing department: it is in charge of searching clients in order to sell them the different life insurance products.
- Legal department: it is in charge of pursuing people that can not pay the mortgage loans or people that can not pay the rent of the apartment they hire (that belongs to "Les Retraites Populaires").

In Switzerland there is a compulsory percentage of someone's income that has to be given to a life insurance company in order to have a pension for retirement (this is called "deuxième pilier"). The employee gives a certain percentage of his gross income to the life insurance company and the employer must also give the same percentage. The employee can optionally dedicate a greater amount of his gross income to his retirement pension (this is called "troisième pilier"). There are some advantages in having a "troisième pilier", the main one is that the supplementary amount of income dedicated to pension retirement is not liable to tax. "deuxième pilier" and "troisième pilier" are subject to different regulations, which is why there are different software applications for each of them.

Now, I am going to describe briefly the different products of “Les Retraites Populaires” in which I have worked:

### Deferred annuity

During the duration of your choice you pay the premiums that you wish, i.e. you can choose to pay a fixed premium monthly, quarterly, twice-yearly, yearly and /or to pay one or several unique premiums. Once the duration of the deferred period is finished you perceive an annuity (which can be every month, every half a year or every year) until you die. Life insurance companies normally offer a guaranteed yield (which is very low). In the case of a successful investment period a supplementary yield can be given (this is called “participation aux excédents”). The following image illustrates this idea.



There are different versions of the deferred annuity product. Each of this versions offers a different annuity.

1. **Exclusive:** in the case of death, the heirs (“héritiers” in French) perceive all the capital that has been invested during the deferred period (obviously with no interests) independently of the annuities that have been given before the death.
2. **Classical:** in the case of death, the heirs perceive all the capital invested during the deferred period minus the annuities perceived until the time of death.
3. **Altruistic:** in the case of death, the annuities continue to be perceived by the spouse or by the designed person.
4. **Maximal:** in the case of death, the heirs do not perceive any of the capital invested. This version offers the highest annuity.



### **Immediate annuity**

When you decide to stop working you can give your retirement capital to “Les Retraites Populaires”. Immediately you will start perceiving annuities, until your death. The following image illustrates this idea:

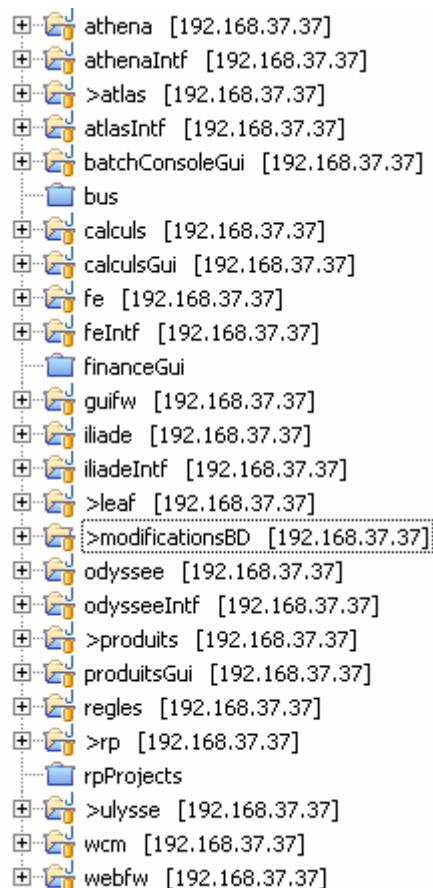


For this product the same versions than the ones of the deferred annuity can be chosen (exclusive, classical, altruistic, maximal).

When a client wants to buy a financial product of "Les Retraites Populaires" a proposition is made to him with the description of the product/s he has selected (annuity perceived when retired, reserved capital in case of death...) . If the client finally buys the life insurance product, a contract is signed.

There are different software applications to manage propositions and to manage contracts, i.e. until the client has not agreed to buy a financial product a software application is used, once the contract is signed a different software application is used.

These are the different projects (software applications) that are used in "Les Retraites Populaires". Here is a description of the most important ones:



- Athena: handles "deuxième pilier" propositions.
- Iliade: handles "deuxième pilier" contracts.
- Odysse: handles "troisième pilier" contracts.
- Ulysse: handles "troisième pilier" propositions.
- Atlas: handles the mortgage loans.
- Calculs: handles the different calculations made by other applications. For example to calculate the annuity perceived for a certain financial product and for a certain initial investment this application would be used. In some cases, different software applications make the same calculations which is why there is a different application in charge of this.
- Fe (facture encaissement): it is in charge of creating the invoices of apartment rents, mortgage rents, insurance premiums ... and to perceive the money from the clients.
- Produits: defines the different products proposed by "Les Retraites Populaires" (different kinds of mortgage loans, financial products for "deuxième pilier"...) )
- Regles: checks that the information introduced by other applications satisfies the rules to which it is subject (for example for a "deuxième pilier" the minimum retirement age is 65).

During my internship I worked in the application Ulysse ("troisième pilier" propositions). The users of this application are the advisers of the marketing department, i.e. the people in charge of selling "Les Retraites Populaires" products. The adviser introduced all the information of the client into the application (date of birth, name, sex ...) and the type of product that the client had selected. Then, the application calculated the annuities that each of the selected products would offer them. Finally the adviser could generate automatically (GED "Gestion Electronique de Documents") the following documents: an admission demand (contract for the life insurance policy), an insurance proposition (in this document all the details of the insurance policy are given), a summary of the proposition and eventually some questionnaires (for example a health questionnaire).

The following screenshots illustrate how the application works:

1<sup>st</sup> step: selecting a product

Créer offre Nouvelle affaire

Sélectionner produit  
Saisir offre  
Générer documents

Produit

Date d'effet 01.07.2009

Famille Rentés

Prévoyance Liée

Produit RP Rente différée

Financement Prime unique

Nombre de têtes 1 tête

Calculer Précédent Suivant Terminer Annuler

2<sup>nd</sup> step: introducing all the necessary details to calculate the annuities.

Créer offre Nouvelle affaire

Sélectionner produit  
Saisir offre  
Générer documents

Personne(s) assurée(s)

Nom Prénom Sexe Date naissance (jj.mm.aaaa) Age entrée

Assuré 1 Messerli Vincent Masculin 25.06.1969 40

Prestations

Fréquence paiement rente Age fin assuré 1 Echéance

Trimestrielle 65 25.06.2034

Variante(s)	Capital décès échéance	Rente par année	Rente trimestrielle
<input checked="" type="checkbox"/> Exclusive	156'000.00	9'050.00	2'262.50
<input checked="" type="checkbox"/> Classique	156'000.00	13'623.60	3'405.90
<input checked="" type="checkbox"/> Maximale		14'013.00	3'503.25
<input checked="" type="checkbox"/> Maximale 15		13'321.60	3'330.40

Prestation police

Capital décès échéance Rente par année Rente trimestrielle

Exclusive 156'000.00 9'050.00 2'262.50

Financement

Droit de timbre Non Premier versement 01.07.2009 Prime unique d'assurance 6'000.00

Prime Annuelle Année dernier versement 2034 Droit de timbre 0.00

Montant de la prime 6'000.00  y.c. droit de timbre

Participation aux excédents Bonification Investissement total 6'000.00

Financement riche (primes uniques libres avant terme)

Offre  Hors limite

Dossier  Confidentiel  Personnel RP

Calculer Précédent Suivant Terminer Annuler

3<sup>rd</sup> step: generating the documents.

The screenshot shows a software window titled "Créer offre Nouvelle affaire". On the left, there is a sidebar with three menu items: "Sélectionner produit", "Saisir offre", and "Générer documents" (which is highlighted with a yellow dot). The main area is titled "Documents" and contains several sections:

- Intermédiaire externe:** Includes fields for "Intermédiaire" (filled with "Courtage S.A."), "Agence", "Nom", and "Prénom". A note "(Si nécessaire, en fonction de l'organisation)" is next to the "Agence" field.
- Conseiller RP:** Includes fields for "Visa" (filled with "bmf"), "Nom" (filled with "Barbay"), and "Prénom" (filled with "Marie-France").
- Langue des documents:** A dropdown menu set to "Français".
- Sélectionner un ou plusieurs documents:** A table with a checkbox column and a "Documents" column.

	Documents
<input checked="" type="checkbox"/>	Résumé des primes/prestations [N° 702100000]
<input checked="" type="checkbox"/>	Offre vie individuelle [N° 702200000]
	... Offre vie individuelle
<input checked="" type="checkbox"/>	Demande(s) d'admission [N° 702300000]
	... Demande d'admission
<input type="checkbox"/>	Conditions Générales d'Assurance Rte Diff Libre Rachetable

At the bottom, there is a toolbar with five buttons: "Calculer", "Précédent", "Suivant", "Terminer" (with a green checkmark icon and a red arrow pointing to it), and "Annuler" (with a red X icon).

I was involved in the final part of the application: the document generation process. At this stage, the marketing adviser has already introduced all the client information, the annuities for each product have been calculated and all this information has been stored in a database.

The document generation process consisted in two main steps:

- Extraction of the information needed for each document in the Ulysse application in order to store it in the GedWork database. All this process was done with Java.
- Document generation: the documents were generated using templates. The dynamic information (non static-information such as the name of the client, annuities perceived...) was searched in the database and introduced into the templates. This step was done with BIRT, an open source reporting system.

Now I will explain in more detail each of these two steps.

### Information Extraction

This step consists basically in collecting all the information that appears in the same block of the document and put it in a same table in the GedWork database (even if in the Ulysse database this information is dispersed in different tables). In some cases some treatment of the information had to be done. There was an excel document that indicated what each field of the GedWork database had to contain. For each table of the GedWork database there was a class in charge of filling all the fields.

The following is an example of the specification of one of the fields (excel document) and the corresponding java code.

Specification of the field (excel):

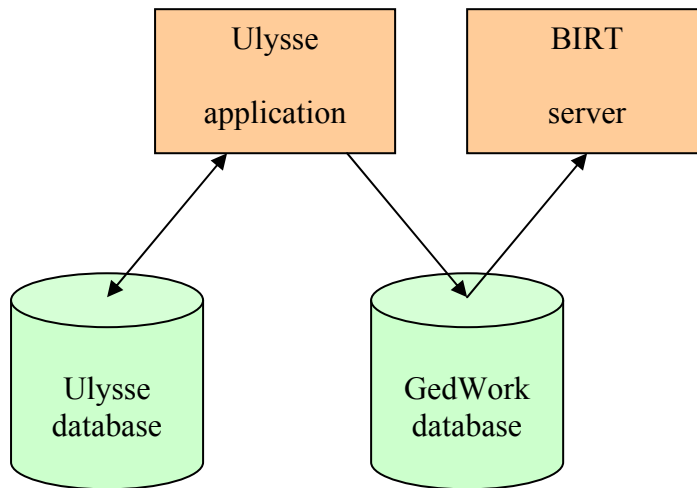
Modifi	Quant	Désignatic	Libelle du Compos	Format	Theri	Nature di	Origir	Description
Corr v2.3	64	NbreTete	Nombre de têtes	A1	Base	Numérique	Ulysse	<b>Nombre de têtes:</b> Extraire Offre.nombreTetes Pour les offre Rentes, si Offre.nombreTetes=2 et aucune variante 2T n'a été sélectionnée, Extraire 1 <b>Entité : Offre</b> <b>Attribut : Nombre tetes</b> <b>1 ou 2</b> <b>(1 ou 2 ne pas tenir cpte du payeur)</b>

Corresponding implementation:

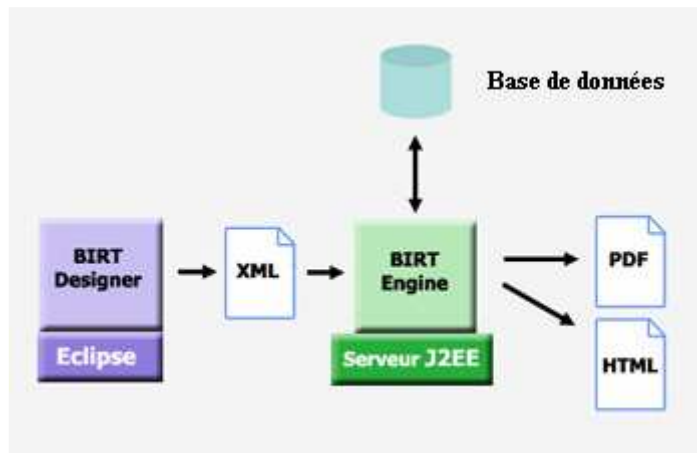
```
// 64 Nombre de têtes
nombreTetes = off.getNombreTetes();
if (TypeProduit.RENTE_DIFFEREES.equals(off.getTypeProduit()) ||
    TypeProduit.RENTE_IMMEDIATES.equals(off.getTypeProduit()) ||
    TypeProduit.RENTE_IMMEDIATES_TEMPORAIRES.equals(off.getTypeProduit()))
{
    result.setNbreTete(s_ONE_TETE);
    List<VarianteOffreDTO>
    varianteOffreList=offre.getOffreRente().getVariantes();
    for (VarianteOffreDTO offreDTO : varianteOffreList) {
        CouvertureDTO aCouv =
        UlysseCache.getInstance().getCouverturePrincipaleVariant
        Produit(offreDTO.getNoVariante().intValue());
        TypeNombreTetes nombreTetes_couverture =
        aCouv.getTypeNombreTetes();
        if (TypeNombreTetes.TWO_TETES.equals(nombreTetes_couverture)) {
            result.setNbreTete(s_TWO_TETES);
            break;
        }
    }
}
else {
    if (TypeNombreTetes.ONE_TETE.equals(nombreTetes))
        result.setNbreTete(s_ONE_TETE);
    else if (TypeNombreTetes.TWO_TETES.equals(nombreTetes))
        result.setNbreTete(s_TWO_TETES);
    else result.setNbreTete(s_BLANC);
}
```

**Document generation**

A marketing adviser (a future user of the application) was in charge of making a word document that specified what the documents generated by Ulysse contain and how information had to be presented. Once this was done, someone in the IT department was in charge of taking this document and make a technical document (also in word). The technical document specified the structure of the BIRT template and where all the dynamic information had to be searched in the database. The person in charge of doing this was also in charge of defining the structure of the GedWork database (indicating what tables had to be created and what fields had each table). An excel document indicated what each field of the database had to contain. I was in charge of taking the technical document (word document) and generating the BIRT template. When a user wanted to generate documents in Ulysse the BIRT server took the templates and generated the documents with the tables in the GedWork database. The following image illustrates this idea:



When a document is generated, Ulysse fills all the tables of the GedWork database that are used to display the dynamic (non-static) information of the document. After, the BIRT server generates the document using the template and the tables in the database (where the dynamic information of the document is searched). The following image illustrates this idea:

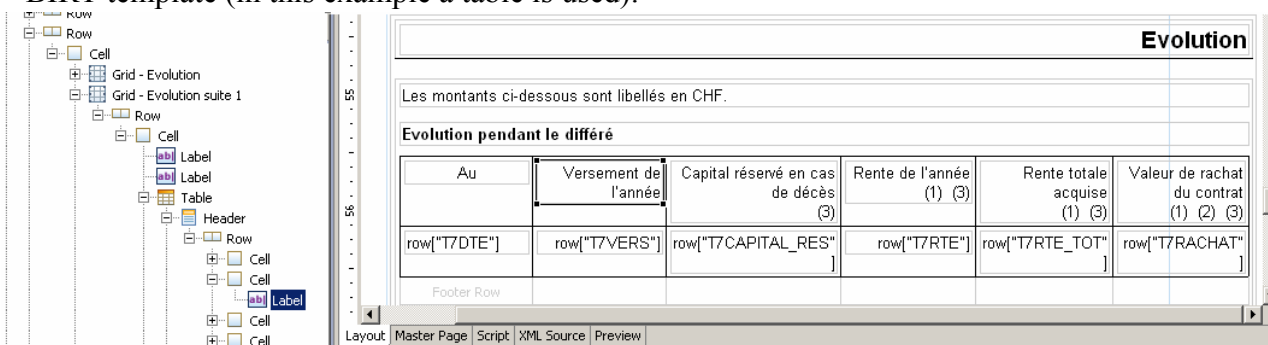


In BIRT there are static fields (for example labels), the value of which is always the same. There are also dynamic fields, the value of which is different for every insurance folder. For example: the name of the person to whom the insurance proposition is addressed is a dynamic field. For the dynamic fields the SQL instruction that selects the corresponding row in the database must be specified.

In some cases it was necessary to view the content of more than one row of the database, in order to achieve this BIRT tables could be used.

The following is an example of how BIRT works:

BIRT template (in this example a table is used):



And this is how the generated document looks like:

Retraites Populaires

## Evolution

Les montants ci-dessous sont libellés en CHF.

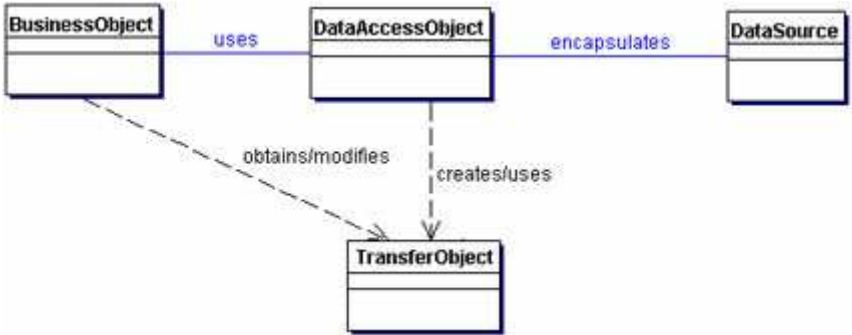
### Evolution pendant le différé

Au	Versement de l'année	Capital réservé en cas de décès (3)	Rente de l'année (1) (3)	Rente totale acquise (1) (3)	Valeur de rachat du contrat (1) (2) (3)
31.12.2009	60'000.00	58'536.60	3'012.05	3'012.05	55'609.75
31.12.2010	0.00	58'536.60	0.00	3'012.05	57'365.85
31.12.2011	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2012	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2013	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2014	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2015	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2016	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2017	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2018	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2019	0.00	58'536.60	0.00	3'012.05	58'536.60
25.06.2020	0.00	58'536.60	0.00	3'012.05	58'536.60

The Ulysse project had three iterations. In each iteration some products of “Les Retraites Populaires” are introduced into Ulysse. In the first iteration the capital products were introduced (these products have not been described previously). In the second iteration the annuity products (immediate annuity and deferred annuity) were introduced. This was the iteration in which I was involved. In the third iteration the investment funds products will be introduced.

As I said previously I was involved in the testing stage of the project, the specification and most of the implementation had already been done. I had to make the BIRT templates of the documents and verify that the documents were generated correctly (technical tests). I had to correct the errors I found. In some cases this involved changing the BIRT templates and in most cases it involved changing the Information Extraction process, i.e. the java code in charge of collecting all the information that was needed in the documents. In order to correct the code I had to look at the excel document that described what had to contain each of the fields in the database and to look if this was implemented correctly, i.e. if the information of the field was extracted correctly. In some cases there was an error in the excel document, i.e. the value that had to be extracted for a field was not the one that was expected in the business document (the document made by the marketing adviser). In this case I had to check with the project manager or a senior developer in order to make changes in the specification (excel document). After, I also had to correct the java code. I was quite happy to find this kind of error as they required more reasoning to resolve them.

In some cases I had to add new fields to the tables of the GedWork database. Firstly I had to modify the table of the database in order to add the new fields (SQL instruction). Secondly I had to modify the DAO (data access object), this object is in charge of extracting all the information of a table in the database and put all this information in a DTO (Data transfer object). Thirdly I had to modify the DTO. The following image illustrates this idea:



Finally I modified the class that was in charge of the Information Extraction (collecting all the information necessary for the document generation). There was one class for every table in the GedWork database that was in charge of gathering all the information of the table and filling the DTO. It was in this class where I had to set the field with the value specified in the specification document (excel).



The project manager and two other interns were in charge of generating test cases (“business tests”) and give me the corrections that had to be made. In most of computer software projects this is the schema used: first the people that construct the application make some tests (technical tests) and after the users of the application make other tests (business tests) and give the corrections to be made. These two kind of tests are needed as sometimes the software developers do not understand accurately every aspect of the business that the application is supposed to manage. Once the corrections are made, other business tests are done in order to see if everything is corrected and if the things that worked before continue working, i.e. in some cases, specially if the software developer is not very good, when a correction is made things that used to work previously may stop working. All this process is repeated until no more corrections are found.

In my case, I understood quite well what the application was supposed to do and not many corrections were given to me.

Some documents are generated in different languages (French, English, German). The language is not taken into account in the same way in all the applications (Ulysse, Odyssee, Athena...). I had been assigned the task to study how each application managed the language aspect, i.e. to study how the fields that depended on the language were filled. I was quite surprised to find out that each application handled the language in a very different way. From a software development point of view this is not very desirable, as if the language aspect was managed in the same way by all the applications it would be easier to make eventual future changes. I had written a document explaining how the language aspect was taken into account by each application (it can be found at the end of the internship report).

Another task I had to do during my internship was to update the computer that was used to generate the test cases so that the last modifications were taken into account. In fact when several developers are working in the same application, all the application files (source code...) are saved into a central server and into each developer’s computer. Once the developer has finished coding something he can commit his changes in the central server. In the case of ELCA, we used the application CVS (Concurrent Versions System) in order to achieve this.

# Internship evaluation

What I have liked about this internship is that it has allowed me to see how a software project is organized and what task every member of the team has. Some people were responsible for the specification, generally the project leader and other members of the team with relevant experience in the IT field. After there were the software architects, that were in charge of defining how the software application was going to be organized, what technologies would be used... Finally there were the software developers, they were in charge of coding what had been specified by the software architects.

It was interesting to see how at the same time different phases of the different iterations were being executed. For example while the project leader, the marketing adviser and two other interns were doing the business tests of iteration 2, software developers had started developing functionalities of iteration 3 and software architects were finishing the technical specification of iteration 3. When an error was detected in the business tests a gnats (report indicating what did not function properly) was sent to a developer. Some times it took a while for the developer to find and understand the part of the code that caused the error as he had written the code one or two months earlier.

The IT sector has resisted quite well to the financial crisis. Despite this, given the severity of the situation, ELCA is affected by the current economic environment. Some big clients of ELCA, such as the ones from the public sector (Swiss army for example) or the CFF have continued they IT developments normally. The important weight that these clients have in ELCA's revenue are one of the reasons of the relatively good reaction that ELCA has had to the crisis. But most of the other clients have limited their IT budget. They are reluctant to engage themselves in the development of new software applications, as these are long and expensive projects. Instead, they have reduced their budget and they are focusing in maintaining their current applications.

This internship has also allowed me to understand better some computer science aspects that were purely theoretical before. For example, I have understood the importance that inheritance and abstract classes have, they allow to centralize common behaviors. I have realized that it is crucial to centralize functions and avoid repeating code in different classes or applications, as otherwise it becomes very tedious to make changes. I had access to the source code of all the applications of "Les Retraites Populaires", which has allowed me to learn all these aspects.

What I have not liked about the internship is that the task I have been assigned, i.e. generating BIRT templates, testing the documents and correcting the information extraction code was not very challenging from an intellectual point of view. It was very repetitive and not much reasoning was needed, which is the complete opposite of the job I would like to do. I did not expect to do this kind of work during the internship. I chose to do this internship because I thought I would be part of a team that developed a complex software application and that I would be able to learn how to structure and develop a complex information system. Although, as I have explained previously, my knowledge of software development projects has progressed this internship has not reached at all my initial expectations.

Despite this, I found quite interesting to correct the errors I found when I tested the application, specially when it implied modifying the information extraction code and changing the specification (excel document).

One month after the start of the internship my boss (the person that was in charge of me during the internship) was very happy with the work I had done. I told him that the job I was doing was not what I expected of this internship and I asked him if it was possible to be assigned in the development of the application, rather than in the testing. As they were satisfied with my job I thought I was in a strong position to ask this. My boss told me he would ask the project manager of "Les Retraites Populaires" if such a change was possible. The project manager of Ulysse was not very appreciated among the employees at "Les Retraites Populaires". He is regarded to be someone selfish that only thinks in the success of the development of his project, Ulysse, without taking into consideration the employees desires. He did not agree to assign me a different task because he thought that I did well my job and did not want to take the risk of assigning the task I was doing to somebody else that may have not been so efficient. He also considered that it would take to much training time to introduce me in a different activity.

Many days I worked at "Les Retraites Populaires", as it is were the application was going to be used and were it had to be tested in order to have the same computer environment. I understood why the development of new applications was outsourced to ELCA. Most of the employees at "Les Retraites Populaires" were used to old programming languages (Cobol, C...) and did not have a good understanding of modern programming languages such as Java. The employees did not have a very strong education, none of them had studied more than three years after high school. For these two reasons the IT department at "Les Retraites Populaires" did not have "le savoir-faire" to develop complex applications. At ELCA most of the employees have studied at the EPFL (Ecole Polytechnique Fédéral de Lausanne) or at the "grandes ecoles" in France.

I like the software development activity, I think it is interesting from a technical point of view (it is intellectually challenging). I think that it is a domain were you can combine both, an engineering technical activity with the relational, consulting side of understanding the business aspects of what the application must do (specification phase). I have decided to start my career in this area. At ELCA they have told me that if I continue with them after my internship they will assign me more interesting tasks. I will still have a look at other companies to see what they offer. I consider quite interesting the SAP domain (enterprise resource planning).

In the following section I present the three documents (insurance proposition, admission demand and summary of the proposition) in which I have been working.

## Gestion de la langue dans la GED des différentes applications

### Ulysse

La langue est défini dans UlysseGedData. Avant de remplir une table on accède à UlysseGedData.getlanguage() pour définir la langue. Tous les champs qui dépendant de la langue sont ou bien remplis à partir du fichier GedExtractionI18\_langue.properties ou bien à partir de la table CODE\_TEXTE. Voici un extrait du code pour illustrer ceci:

Dans la classe GEDBcle4ExtractManagerImpl.java:

```
result.setB4freqPrimeNom(getI18N(keyFreqPrimeNom, m_langueImpr));
```

### Iliade

La langue n'est pas prise en compte. Les champs qui dépendant de la langue sont codés en dur. Voici un extrait du code pour illustrer ceci:

Dans la classe GEDBaseExtractManagerImpl.java:

```
if (TypeSexe.FEMININ.equals(affilie.getSexe())) {
    if (TypeEtatCivil.CELIBATAIRE.equals(etatCivil)) {
        etatCivilLabel = "Célibataire";
    } else if (TypeEtatCivil.DIVORCE.equals(etatCivil)) {
        etatCivilLabel = "Divorcée";
    } else if (TypeEtatCivil.MARIE.equals(etatCivil)) {
        etatCivilLabel = "Mariée";
    } else if (TypeEtatCivil.SEPARE.equals(etatCivil)) {
        etatCivilLabel = "Séparée";
    } else if (TypeEtatCivil.VEUUF_VEUVE.equals(etatCivil)) {
        etatCivilLabel = "Veuve";
    } else {
        etatCivilLabel = TypeHelper.getLabel(etatCivil);
    }
}
```

### Atlas

La langue n'est pas prise en compte. Les champs qui dépendant de la langue sont codés en dur (très souvent avec des constantes définis dans AbstractGedExtractionManager.java (Abstract class for all Ged Extraction manager implementation)). Voici un extrait du code pour illustrer ceci:

Dans la classe GedBaseExtractionManagerImpl.java:

```
result = CIVILITE_SOCIETE;
```

Dans la classe AbstractGedExtractionManager.java:

```
protected static final String CIVILITE_SOCIETE = "Madame, Monsieur";
```

### Fe

La langue n'est pas prise en compte. Les champs qui dépendant de la langue sont codés en dur. Voici un extrait du code pour illustrer ceci:

Dans la classe GEDBaseExtractManagerImpl.java:

```
gedDto.setLibellePeriodicite(
    plusieursPrime ? "Primes annuelles" : "Prime annuelle");
```

## Athena

La langue n'est pas prise en compte. Les champs qui dépendent de la langue sont très souvent codés dans le fichier `ApplicationResources.properties`. Voici un extrait du code pour illustrer ceci:

```
Dans la classe GEDEXtractionBaseDTOManagerImpl.java :
    result.setCiviliteDestinataire(ResourcesHelper
        .getMessage("ged.extraction.base.madameMonsieur"));
```

Dans la classe ResourceHelper.java:

```
public static final String s_RESSOURCE_FILE =
    "ch.rp.athena.gestion.ressource.ApplicationResources";
```

Pour prendre en compte la langue une solution similaire à Ulysse pourrait être implémentée, c'est à dire créer un fichier `.properties` pour chaque langue:

`ApplicationResources_fr.properties`, `ApplicationResources_de.properties`...

## Odyssee

La langue n'est pas prise en compte. Les champs qui dépendent de la langue sont codés en dur. Voici un extrait du code pour illustrer ceci:

```
Dans la classe InterfaceGEDManager.java :
    if (TypeSexe.FEMININ.equals(sexAssure1)) {
        aGedCapitauxDTO.setGvCodSexel("F"); //Y000010798
        aGedCapitauxDTO.setGvLibSexel("féminin"); //Y000010866
    }
```

# **RP Rente différée**

## **Offre de prévoyance individuelle**

Projet n° 100430.1 établi le 29 juin 2009

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VULOP03F.rptdesign / 214331



**Contact**

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E-mail: mf.barbay@retraitespopulaires.ch

---

**Personne assurée**

Prénom et nom :  
Sexe : Masculin  
Date de naissance : 25.06.1955

---

**Offre de prévoyance**

Assurance : RP Rente différée  
Type de prévoyance : prévoyance libre (pilier 3b)  
Rente payable dès l'âge de : 65 ans  
Début du contrat : 01.07.2009  
Fin du différé : 25.06.2020  
Remarque : ce projet est établi sur la base des tarifs et des participations aux excédents en vigueur le 29.06.2009. Tout changement des conditions applicables demeure réservé.

**Variante Exclusive****Prestations****Prestation en faveur de**

	Rente par année (en CHF)	Rente par trimestre (en CHF)
<b>Prestation en cas de vie</b>		
Rente garantie payable trimestriellement, à terme civil échu, aussi longtemps que la personne assurée est en vie	3'012.00	753.00

**Prestation en cas de décès**

Au décès de la personne assurée, pendant le différé ou pendant le paiement de la rente, Retraites Populaires restitue la totalité de la prime unique d'assurance (capital réservé en cas de décès).

**Investissement**

Prime unique d'assurance	CHF	58'536.60
Droit de timbre	CHF	1'463.40
Investissement total	CHF	60'000.00

**Participation aux excédents**

Lorsque ses résultats financiers annuels le permettent, Retraites Populaires distribue une participation aux excédents qui sert à augmenter directement le montant de la rente assurée.

Le montant de la rente mentionné sous la rubrique Prestations sera amélioré par les futures distributions d'excédents.

La participation aux excédents dépend des résultats techniques futurs de Retraites Populaires ; elle ne peut pas être garantie.



Les montants ci-dessous sont libellés en CHF.

### Evolution pendant le différé

Au	Versement de l'année	Capital réservé en cas de décès (3)	Rente de l'année (1) (3)	Rente totale acquise (1) (3)	Valeur de rachat du contrat (1) (2) (3)
31.12.2009	60'000.00	58'536.60	3'012.05	3'012.05	55'609.75
31.12.2010	0.00	58'536.60	0.00	3'012.05	57'365.85
31.12.2011	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2012	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2013	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2014	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2015	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2016	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2017	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2018	0.00	58'536.60	0.00	3'012.05	58'536.60
31.12.2019	0.00	58'536.60	0.00	3'012.05	58'536.60
25.06.2020	0.00	58'536.60	0.00	3'012.05	58'536.60

### Evolution pendant le paiement de la rente

Au	Capital réservé en cas de décès (3)	Rente totale en cours (1) (3)	Valeur de rachat du capital réservé en cas de décès (1) (3) (4)
25.06.2020	58'536.60	3'012.00	28'614.25
31.12.2020	58'536.60	3'012.00	28'994.90
31.12.2021	58'536.60	3'012.00	29'761.20
31.12.2022	58'536.60	3'012.00	30'537.45
31.12.2023	58'536.60	3'012.00	31'322.70
31.12.2024	58'536.60	3'012.00	32'115.90
31.12.2025	58'536.60	3'012.00	32'915.70
31.12.2026	58'536.60	3'012.00	33'721.00
31.12.2027	58'536.60	3'012.00	34'530.40
31.12.2028	58'536.60	3'012.00	35'342.50
31.12.2029	58'536.60	3'012.00	36'155.60
31.12.2030	58'536.60	3'012.00	36'968.00

(1) Si plusieurs versements sont prévus, ces valeurs ne sont pas garanties car elles dépendent du tarif

Projet en faveur de :

Projet no : 100430.1

Etabli le : 29.06.2009

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applicable lors de chaque investissement.

- (2) Pendant la période du différé, le contrat peut être racheté partiellement ou totalement. Le rachat total entraîne l'annulation du contrat. Dans la demande d'admission, le preneur d'assurance peut renoncer au rachat du contrat pendant la période du différé.
- (3) Ces valeurs ne tiennent pas compte de la participations aux excédents.
- (4) Pendant le paiement de la rente, le rachat de la police est exclu. Seul le rachat du capital réservé en cas de décès est possible. Dans ce cas, la rente contractuelle continue à être versée jusqu'au décès de la personne assurée.

## Changement de variante

---

Pendant la période du différé, la rente viagère correspond obligatoirement à la variante Exclusive. Toutes les valeurs relatives à la variante Exclusive sont mentionnées ci-devant.

Au terme du différé, le preneur d'assurance peut modifier la variante de la rente assurée en y incluant, si nécessaire, une seconde personne assurée. Les détails relatifs à chaque variante retenue se trouvent ci-après.

## Variante Classique

### Principe

---

Au terme du différé, le contrat est transformé en **variante Classique** avec paiement trimestriel de la rente. Les valeurs mentionnées ci-dessous le sont à titre indicatif car elles dépendent du tarif applicable lors de la transformation ; elles ne tiennent, de plus, pas compte de la participation aux excédents attribuée pendant le différé, puis pendant le paiement de la rente.

### Prestations

---

#### Prestation en faveur de

	Rente par année (en CHF)	Rente par trimestre (en CHF)
<b>Prestation en cas de vie</b>		
Rente payable trimestriellement, à terme civil échu, aussi longtemps que la personne assurée est en vie (1)	4'711.80	1'177.95

(1) Le montant de la rente n'est pas garanti. Voir remarque sous Principe.

#### Prestation en cas de décès pendant le paiement de la rente

Au décès de la personne assurée, Retraites Populaires restitue la différence entre la prime unique d'assurance et la somme des rentes déjà servies.

Les montants ci-dessous sont libellés en CHF.

**Evolution du capital restitué en cas de décès pendant le paiement de la rente**

Au	Capital restitué en cas de décès (1)	Rente totale en cours (1)
25.06.2020	58'536.60	4'711.80
31.12.2020	56'102.15	4'711.80
31.12.2021	51'390.35	4'711.80
31.12.2022	46'678.55	4'711.80
31.12.2023	41'966.75	4'711.80
31.12.2024	37'254.95	4'711.80
31.12.2025	32'543.15	4'711.80
31.12.2026	27'831.35	4'711.80
31.12.2027	23'119.55	4'711.80
31.12.2028	18'407.75	4'711.80
31.12.2029	13'695.95	4'711.80
31.12.2030	8'984.15	4'711.80

(1) Ces valeurs ne sont pas garanties.

# **RP Rente différée**

## **Demande d'admission**

Projet n° 100430.1 établi le 29 juin 2009

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VULOP04F.rptdesign / 214332



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---

**Informations dossier**

Nouvelle affaire

Affaire modifiée

Date :

Projet no :

.....  
100430.1

Annule et remplace police no :

.....

## Preneur d'assurance

Madame                       Monsieur                       Entreprise

Prénom et nom : .....

Adresse : .....

NPA / Domicile / Pays : .....

Date de Naissance : 25.06.1955                      Nationalité : .....

No AVS : .....

No de téléphone privé : .....                      E-mail : .....

Etat civil :                       célibataire     marié(e)     séparé(e)     divorcé(e)     veuf / veuve

lié(e) par un partenariat enregistré                       partenariat dissous

**Si personne physique :** joindre une photocopie d'une pièce d'identité officielle non échue avec photographie.

**Si personne morale :** joindre un extrait du RC datant de moins de 12 mois ou photocopie des statuts ou document équivalent.

Si le preneur d'assurance a la qualité de personne assurée, veuillez répondre aux questions ci-dessous :

Exercez-vous une activité lucrative ?                       oui                       non

Si oui : êtes-vous indépendant(e) ?                       oui                       non

Si non : employeur actuel ? .....

Êtes-vous affilié(e) à une institution de prévoyance professionnelle ?                       oui                       non

Quelle profession exercez-vous actuellement ? .....

## Personne assurée

Identique au preneur d'assurance                       oui                       non

## Payeur de primes

Identique au preneur d'assurance                       oui                       non

Identique à la personne assurée                       oui                       non



Genre d'assurance : RP Rente différée  
Type de prévoyance : prévoyance libre (pilier 3b)

**Prestation en cas de vie de la personne assurée :**

Rente viagère différée sur 1 tête,  
payable à trimestre civil échu dès que la personne assurée atteint l'âge de 65 ans.

**Prestation en cas de décès de la personne assurée :**

- Restitution de la totalité des primes versées afférentes à l'assurance  
(Si le preneur d'assurance choisit cette solution, il pourra changer de variante au moment de la mise en pension.)

---

**Rachat de la police**

Solution retenue :

- Le rachat de la police est exclu en tout temps.
- Le preneur d'assurance peut demander le rachat partiel ou total de la police aussi longtemps qu'il n'a pas atteint l'âge fixé pour le versement de la rente.  
Dès l'entrée en jouissance de la rente, seul le rachat du capital réservé en cas de décès est possible.

---

**Clause bénéficiaire**

- Clause standard

En cas de vie : L'assuré.

En cas de décès : 1/ le conjoint survivant ou le partenaire enregistré survivant, à défaut;  
2/ les autres héritiers de l'assuré.

- Clause particulière (indiquer nom, prénom et date de naissance de chaque bénéficiaire)

En cas de vie : .....

En cas de décès : .....

.....

.....

## Identification de l'ayant droit économique

---

- Le preneur d'assurance déclare être l'ayant droit économique des fonds investis
- Le preneur d'assurance déclare que l'ayant droit économique des fonds investis est :

Prénom et nom : .....

Raison sociale : .....

Adresse : .....

NPA / Domicile / Pays : .....

Date de naissance : ..... Nationalité : .....

## Remarques

---

.....

.....

.....

.....

## Conditions

---

Le preneur d'assurance déclare avoir reçu et pris connaissance, avant de signer la présente demande d'admission, des conditions générales d'assurances. Il confirme avoir reçu les informations légales (art. 3 de la Loi fédérale sur le contrat d'assurance – LCA). Il atteste, de plus, avoir reçu l'information écrite sur le représentant de Retraites Populaires (ci-après RP) ou sur l'intermédiaire (courtier).

Le(s) soussigné(s) donne(nt) son (leur) consentement à ce que RP traite les données personnelles résultant de la demande d'admission et de la gestion du contrat. RP est autorisée à communiquer de façon appropriée des données aux réassureurs et à d'autres assureurs. Elle est également autorisée à recueillir des renseignements auprès de ces derniers ainsi qu'auprès de tiers, en particulier les établissements bancaires.

Lieu et date : .....

Le preneur d'assurance : .....

La personne assurée (si différente du preneur d'assurance) : .....

La signature du représentant légal (indiquer sa relation avec la personne assurée) d'une personne assurée mineure est nécessaire ; il en va de même de celle du tuteur et de l'autorité tutélaire pour une personne assurée sous tutelle.

Le représentant légal :             Le tuteur : .....

Si représentant légal : relation avec la personne assurée : .....

Le représentant de Retraites Populaires ou l'intermédiaire (courtier) qui a vérifié l'authenticité des signatures qui précèdent : .....

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Fax : (+41) 021-348 23 27  
E-mail: mf.barbay@retraitespopulaires.ch

**Personne assurée**

Prénom et nom :  
Sexe : Masculin  
Date de naissance : 25.06.1955

**Offre de prévoyance**

Assurance : RP Rente différée  
Type de prévoyance : prévoyance libre (pilier 3b)  
Rente payable dès l'âge de : 65 ans  
Début du contrat : 01.07.2009  
Fin du différé : 25.06.2020  
Remarque : ce projet est établi sur la base des tarifs et des participations aux excédents en vigueur le 29.06.2009. Tout changement des conditions applicables demeure réservé.

**Investissement**

Prime unique d'assurance	CHF	58'536.60
Droit de timbre	CHF	1'463.40
Investissement total	CHF	60'000.00

**Prestations****Prestations en cas de vie**

	Rente par année (en CHF)	Rente par trimestre (en CHF)
<b>Variante Exclusive</b>	3'012.00	753.00

**Changement de variante  
au terme du différé****Prestations en cas de vie**

	Rente par année (en CHF)	Rente par trimestre (en CHF)
<b>Variante Classique</b>	4'711.80	1'177.95

Les rentes mentionnées ci-dessus ne tiennent pas compte des participations aux excédents.

**Ce document ne fait pas office d'offre. Il ne doit en aucun cas être remis au client mais sert uniquement de base pour le conseil.**