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New Course in Emerging SAP Technology

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EMERGING SAP TECHNOLOGY: COURSE DESIGN STRATEGY AND TOOLS FOR INTEGRATION.

Abstract
Organizations are seeking graduates who can help them transform into digital enterprises where rapid access to big data via user friendly applications is critical to success. Students typically take courses in data management, business process integration, configuration and analytics which employ more traditional technologies such as SAP ERP and Business Objects. To prepare for their role as enabler of transformation, students must acquire skills in emerging technologies that will be critical to this transformation. In this paper we describe a new course that utilizes several emerging SAP technologies to better prepare them for their next generation careers. The technologies included are ABAP, SAP HANA, HANA cloud platform (HCP), SAP Gateway Services, Open Data Protocol (OData), and SAP UI5.

Keywords
Advanced Business Application Programming (ABAP), Gateway Services, High Performance Analytic Appliance (HANA) Database, HANA Cloud Platform (HCP), Open Data Protocol (O Data), SAP UI5 Applications, SAP Integration.

Purpose

In this presentation we will share a pedagogy that addresses how to teach emerging SAP technologies. It is critical for students graduating with an MIS degree, especially those with an emphasis in Enterprise Resource Planning (ERP), to have a broad understanding of emerging technologies and their applications in order to be productive in their current or future jobs. This paper describes a course that incorporates several emerging SAP technologies.

Technology

Attendees will gain a general understanding of the following technologies and how they interact with each other in an enterprise environment:

Advanced Business Application Programming (ABAP)

The ABAP language was created by SAP and is only used in SAP products. ABAP was originally created for writing reports and later became the primary language for the core business logic.

Students will create a "hello world" application to familiarize them with the basics of creating a program and working with the code repository in NetWeaver. Later, students will create an ABAP class that will contain objects and methods to access business transactional data such as a sales order header and sales order line item information.

Gateway services

A gateway acts as a middleman between a front end (typically a web browser) and a backend (an application server or database) performing important functions such as load-balancing, security, etc. A gateway server can be installed one of two ways, as a hub or embedded type. In a hub configuration there is a central gateway on the front-end and a business suite on the back-end. The front-end can route users to multiple back-end systems. An ABAP class will be published and made available as a gateway service to outside applications. Output will be either a JavaScript Object Notation (JSON) file or Extensible Markup Language (XML).

Students will create and configure a gateway service using an ABAP class that they create. After creating the service they will learn how to test and validate the connection by viewing metadata as a response to calling the service through a URL. As part of creating the service, students will need to create a user and a role so the gateway service can be secure and only accessed by proper users when needed.

High-Performance Analytic Appliance (HANA) database

SAP's new in-memory database, SAP HANA, provides unique features and capabilities for organizations. These capabilities are based on fewer data aggregates, the use of column store (vs. row store), indexing, and compression.

Student will use HANA Studio, an Eclipse Integrated Development Environment (IDE), interact with the HANA database and create various objects such as database tables and load data.

HANA Cloud Platform (HCP)

HCP is the cloud version of the SAP HANA environment. In future versions of SAP applications (e.g., S/4) customizations will be handled via HCP interfaces to the on premise systems.

Student will get familiar with web IDE development environment to create tables, load data, create web applications and connect to on premise systems.

Open Data Protocol (OData)

The OData protocol uses a Representation State Transfer (REST) connection that is stateless to communicate between the web application and the gateway service. It encodes Create, Read, and Update and Delete (CRUD) process in applications development.

Students will first use OData protocol to query data in a HANA database. They will then create and test an OData connection between a UI5 application (see below) and a gateway service. They will do this by creating a view file and a controller file in a UI5 application. Query data through an OData connection.

SAP UI5 applications

SAP UI5 is a series of programming libraries created by SAP that are based on Hyper Text Markup Language version 5 (HTML5) and JavaScript language. The libraries include a series of controls such as buttons, text boxes, and list boxes that

can be embedded in applications. The application framework is based on the Model-View-Controller (MVC) model that is used to create applications.

Students will create a web application using SAP UI5 that will read a sales order from a SAP NetWeaver system running ECC 6.

Integration

Students will first complete assignments in each of the technologies mentioned above. They will then build a complete application that integrates the capabilities of these technologies as illustrated in Figure 1.
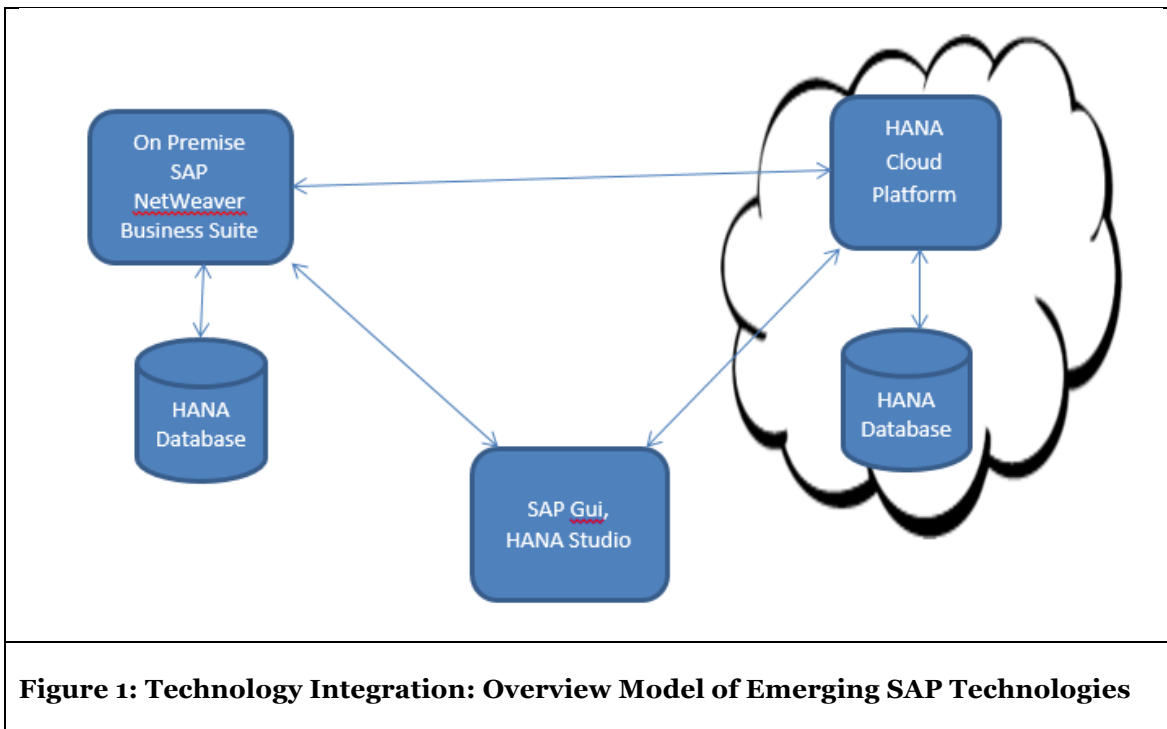

Figure 1: Technology Integration: Overview Model of Emerging SAP Technologies

Conclusion

This course will allow students to enhance their skills to prepare them for the next generation career opportunities by providing them with hands-on experience with emerging SAP technologies. These skills are essential to develop innovative applications that require integration of on premise and cloud systems, high-performance databases, with intuitive user interfaces.

Contributed Materials

Course exercises will be provided at a later date.