BaciBeans:
A NetBeans Plugin for Concurrent Programs

Ashley Broadwell

Mentor: J. Stanley Warford
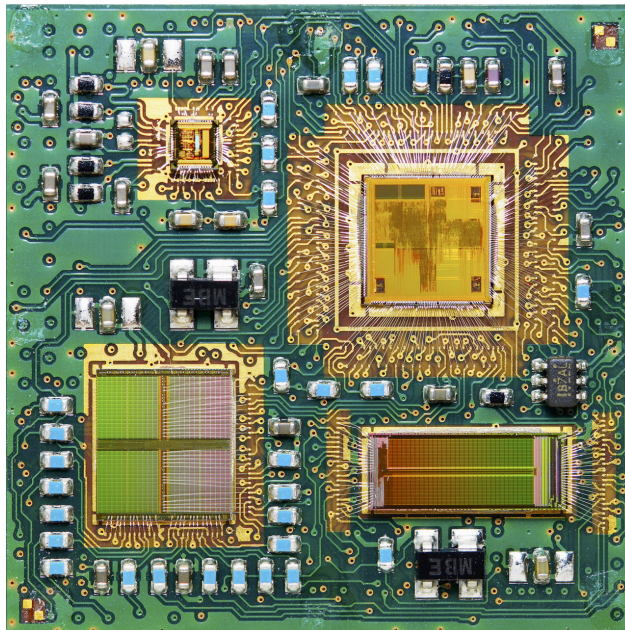
Division of Natural Science, Pepperdine University

Background

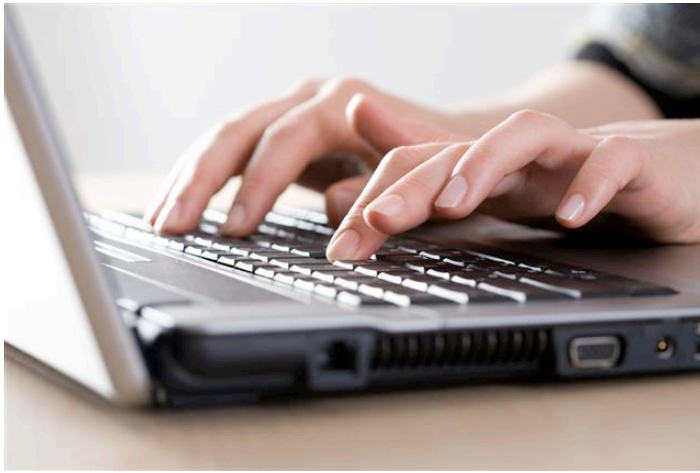What is parallel processing?

What is C--?

When do we use this?

http://developer.axis.com/old/products/mcm/

Problem: JavaBACI Teaching Tool

JavaBACI is an open-source command line concurrency simulator used by students to compile and run C-- programs.

How do we use JavaBACI?

```
ashleybwellsmbp:COSC450 AshleyBroadwell$ cat 01Count3.cm
//Ashley Broadwell
//November 8, 2012
//COSC 450
//A18

/* Copyright (C) 2006 M. Ben-Ari. See copyright.txt */

int n = 0;

void r() {
  int temp, i;
  for (i = 0; i < 10; i++) {
    temp = n;
    n = temp + 1;
  }
}

void q() {
  int temp, i;
  for (i = 0; i < 10; i++) {
    temp = n;
    n = temp + 1;
  }
}

void s() {
  int temp, i;
  for (i = 0; i < 10; i++) {
    temp = n;
    n = temp + 1;
  }
}

void main() {
  cobegin { r(); q(); s();}
  cout << "The value of n is " << n << "\n";
}ashleybwellsmbp:COSC450 AshleyBroadwell$ javabaci bacc 01Count3.cm
Compilation listing is stored in 01Count3.lst
Pcode and tables are stored in 01Count3.pco
ashleybwellsmbp:COSC450 AshleyBroadwell$ javabaci bainterp 01Count3.pco
Source File:  01Count3.cm  Fri Nov 09 17:58:39 2012
Executing PCODE ...
The value of n is 21
ashleybwellsmbp:COSC450 AshleyBroadwell$
```
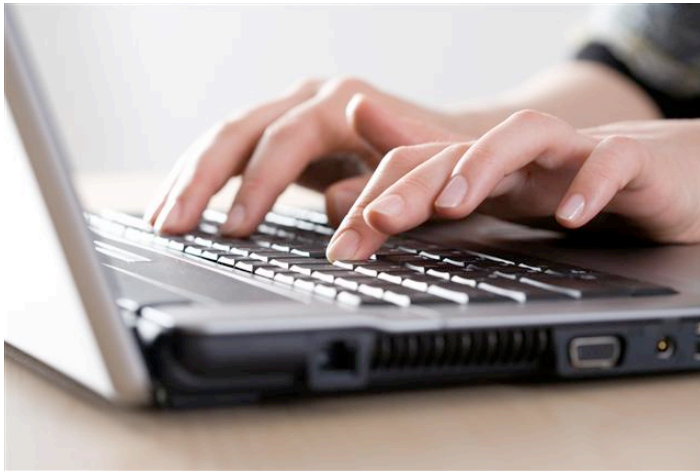
Problem: JavaBACI Teaching Tool

JavaBACI is an open-source command line concurrency simulator used by students to compile and run C-- programs.

How do we use JavaBACI?

With great difficulty.

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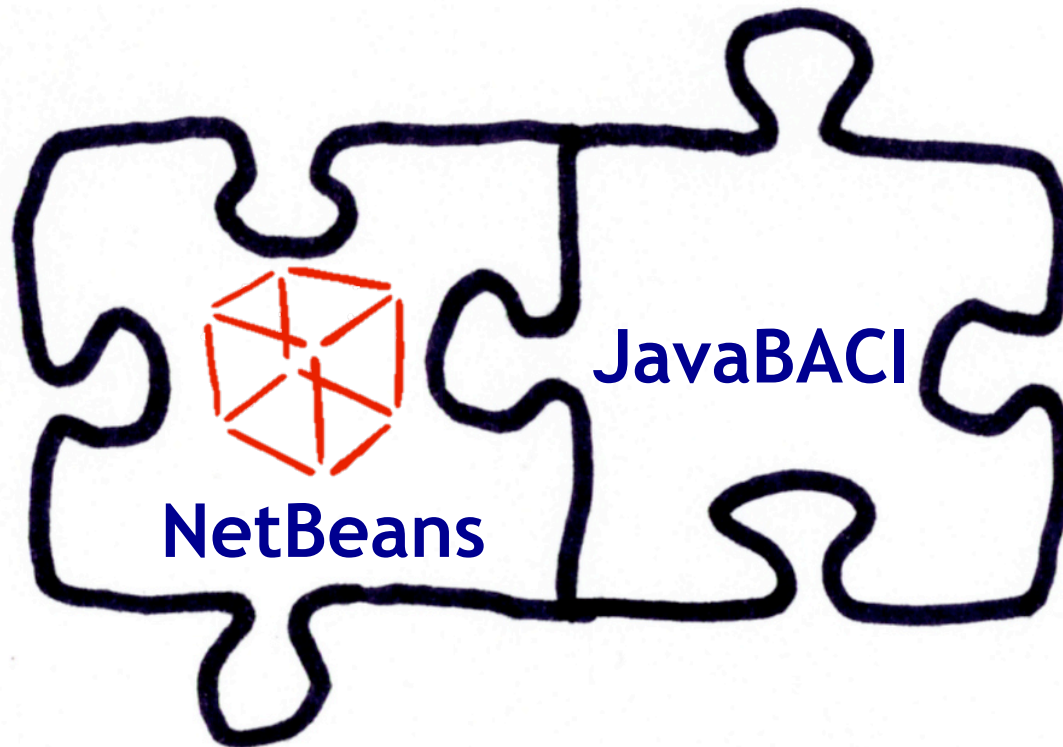
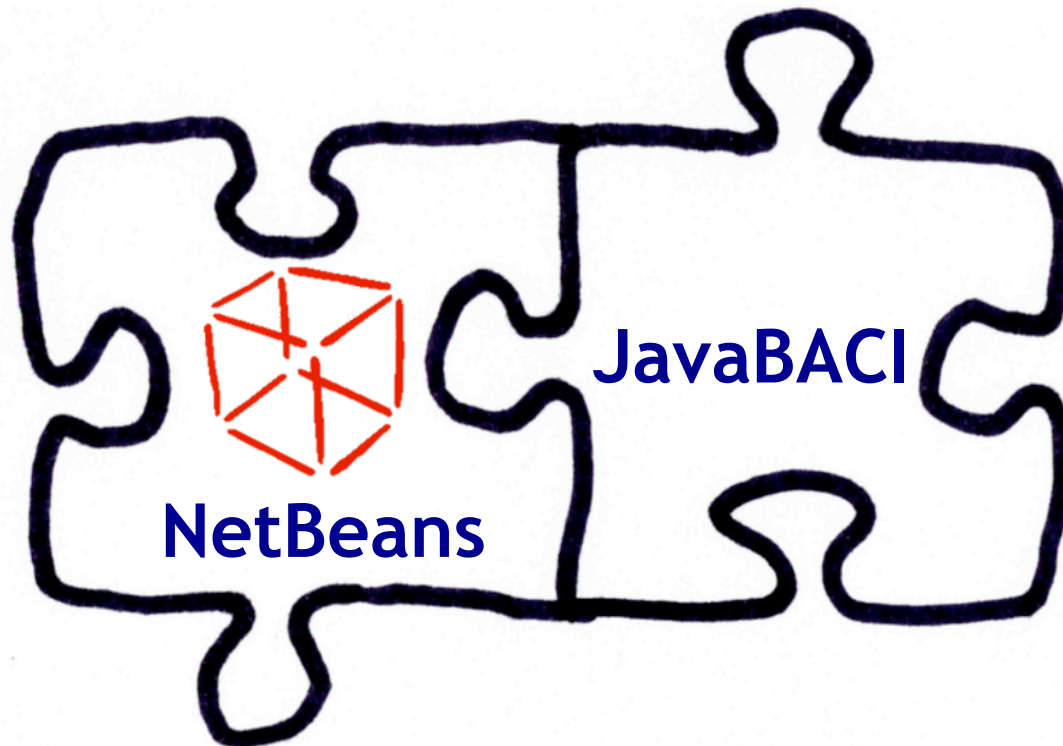# Solution:

BaciBeans: A NetBeans Plugin
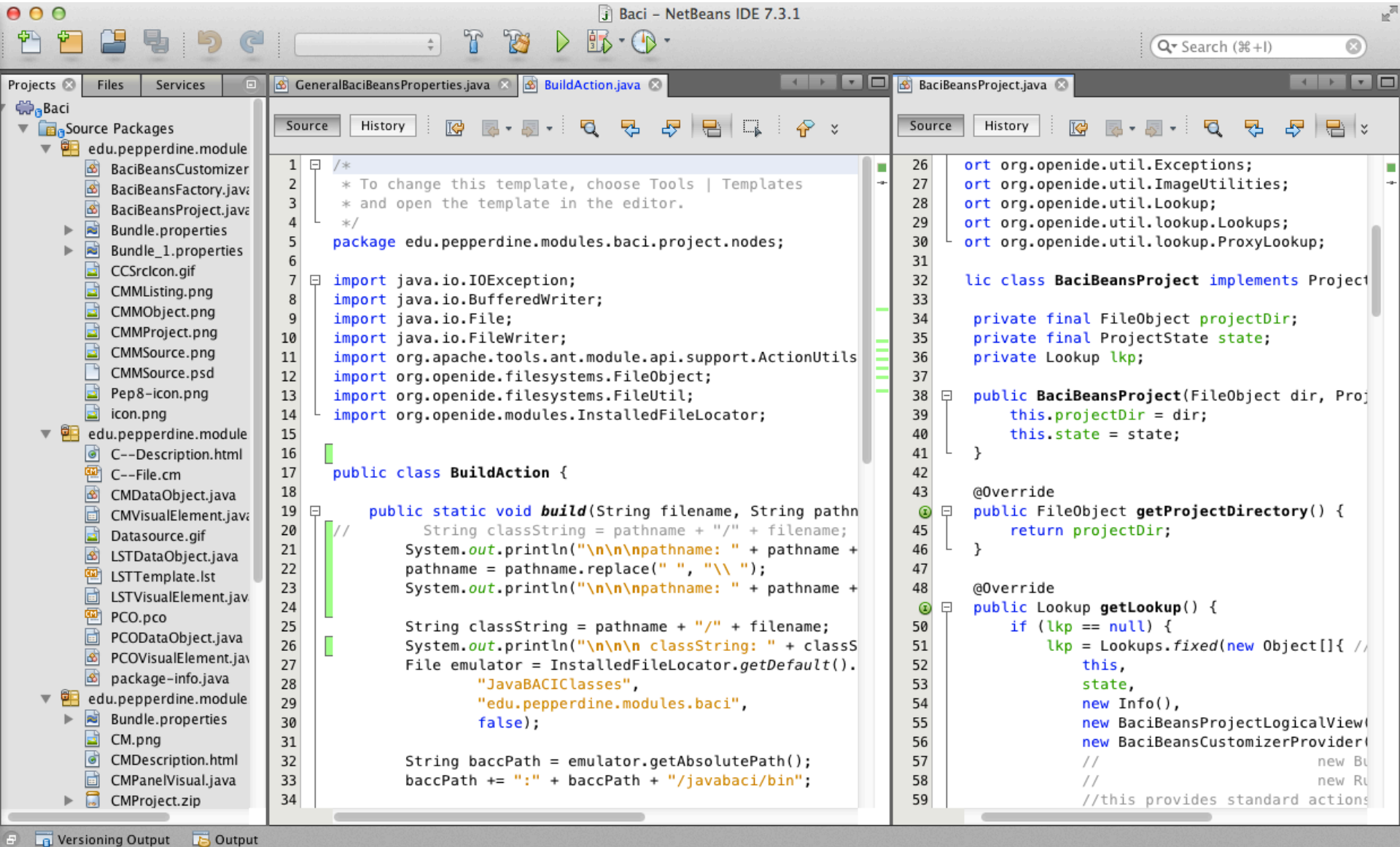
Solution:

BaciBeans: A NetBeans Plugin

What is BaciBeans?

- BaciBeans is a NetBeans plugin that integrates JavaBACI into NetBeans, combining the familiarity and ease of use of NetBeans with the concurrency interpreter.

Software Tool: the NetBeans IDE

With BaciBeans: Advantages

BaciBeans: Demo

Conclusion

- BaciBeans provides students with a new and improved way to program in C-- by allowing students to use the familiar NetBeans IDE.

Conclusion

- BaciBeans has several advantages over the existing system to edit, build, run, and debug on the command line interface using the JavaBACI executable by incorporating the C-- project, file type, and actions within the NetBeans IDE.

Conclusion

- Students also benefit from the project management feature of NetBeans, which allows them to maintain Java, C++, and C-- programs coexisting in the same project group.

Conclusion

- BaciBeans is successfully used in the Programming Paradigms course at Pepperdine University.

Further Plans

We have several plans for improving BaciBeans in the future including
- C-- syntax highlighting and formatting
- code completion capabilities

Acknowledgements:

References:

[1] Ben-Ari, M. *Principles of Concurrent and Distributed Programming,* Addison- Wesley Pearson, Harlow, England, second edition, 2006.

[2] Camp, Tracy. *BACI System.* Colorado School of Mines. Web. 13 Nov. 2013. <http://inside.mines.edu/~tcamp/baci/baci.html>.

[3] Gamma, Erich, et al. *Design Patterns: Elements of Reusable Object-Orientated Software.* Addison-Wesley Longman, Inc. Reading, Massachusetts, 1994. Print.