ITEC1620
Object-Based Programming

Lecture 1

Introduction

Syllabus – Page 1

- Instructor – Prof. S. Chen
- Office Hours –
- TAs/Lab hours –
- Midterm –
- Final –
- http://www.yorku.ca/sychen

Syllabus – Page 2

- Course Description
- Labs
- Text
- Format
  - All notes and assignments on-line
  - Many in-class tutorial sessions
  - Discussion forum

Syllabus – Page 3

- Labs – 15%
- Midterm – 30%
- Final Exam – 55%

- Grading notes
- Late policy

Questions?

What is a Computer?

- ITEC1000
  - LMC, Von Neumann Architecture
- Working definition
  - A computer is a machine that processes data
    - Processes
    - Data

Computer Programming

- A program is a series of instructions that tells a computer how to process data
  - Concepts about processes
    - ➢Algorithms, methods, sub-routines
  - Concepts about data
    - ➢Arrays, objects, OOD

Why is Programming Hard?

- Programming is communication
  - Must communicate in common language
  - Programming languages are very different from spoken languages
- Programs become large
- Programs must be perfect

Eliminating the Details

- What is more important?
  - Concepts or details?
- Where do most programming courses/texts start?
  - Why?
- What can we do different?
  - How?

Iconic Programming

- Eliminate the details of programming
- Icons
  - No code conventions
  - No syntax errors
- Web interface
  - No compiler, operating system, or text editor issues

The Iconic Programmer

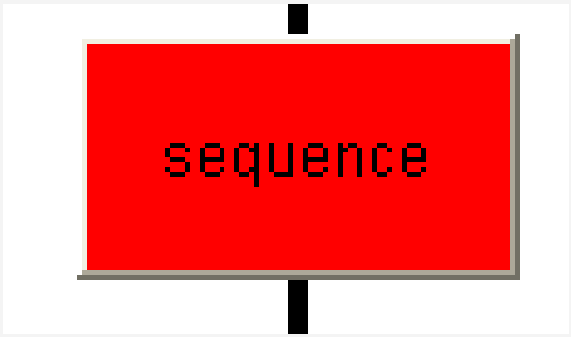
- http://www.edutoolresearch.com/IconicProgrammerApplet.html

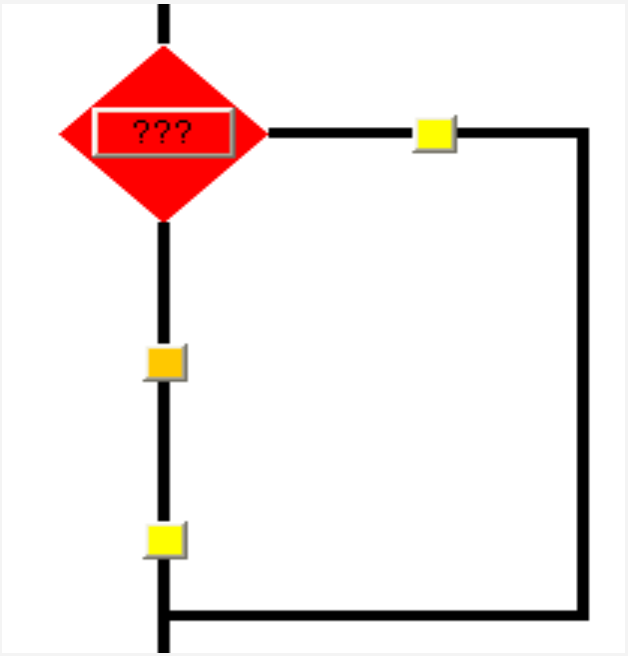
Structured Programming

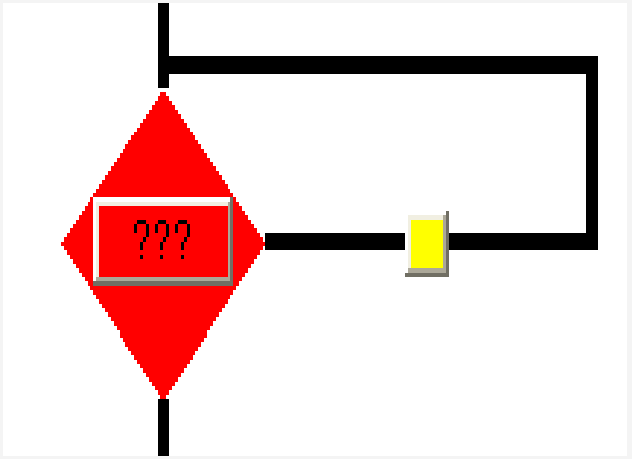
- Focus on processes – focus on actions
- 3 structures of structured programming
  - Sequence
    - ➢ An action that is performed once
  - Branch
    - ➢ An action that is performed maybe once
  - Loop
    - ➢ An action that is performed maybe more than once

Iconic Programmer

- Each structure has an icon







- Program by assembling icons

Program Flow

- Trace your finger along the flow chart
  - Execute actions as you pass over them
  - Make decisions when you encounter them

Sequence

- Standard operation of a computer
- Actions are performed in sequence
  - First action
  - Second action
  - …
  - Last action
- Program runs same way each time

Sample Program

- Program 1

Programming

- Determine all possible actions that need to be done
  - Not easy…
- Determine the “path” that these actions occur
  - Very hard…
  - To program a computer, you have to think like a computer!

Questions?

Readings and Assignments

- Text sections (5th, 6th, or 7th edition)
  - 1.1-1.3
- Install JAVA 5.0 or higher
- Activate TEL labs account