Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Final Assignment: Independent Programming Project – 10%**

You will decide upon a program that will demonstrate the knowledge and skills that you have learned in the course.

**Part 1:**

**Program Description:**

Describe the program you will be creating by explaining everything that your program will do, including rules (if you’re creating a game) or instructions explaining how the program works.

**Programming Details:**

Explain how each of the following Programming concepts/constructs will be used:

* Variables
* Constants
* Decision
* Repetition
* Arrays
* Methods
* File I/O
* Graphics

**IPO Chart**:

A general description for Input, Processing and Output

**Part 2:**

**Pseudo Code:**

Create Pseudo-Code for your program. Indent lines inside loops and if-statements.

Examples of Pseudo-code: <http://www.unf.edu/~broggio/cop2221/2221pseu.htm>

**Part 3:**

**Programming:**

Program using each of the programming constructs/concepts:

* Variables
* Constants
* Decision
* Repetition
* Arrays
* Methods
* File I/O
* Graphics

**Commenting:**

Add comments throughout your code. To get high marks, add a comment above every line of Java code.

**Timelines/Due Dates:**

**Part 1 Due: May 30**

* Program description
* Programming Details
  + Variables & Constants
  + Decision
  + Repetition
  + Arrays
  + Methods
  + File I/O
  + Graphics
* IPO

**Part 2 Due: June 3**

* Pseudo-Code
* Flowchart

**Part 3 Due: June 13**

* Programming (code in Java) → Making sure to use all programming concepts taught
  + Variables & Constants
  + Decision
  + Repetition
  + Arrays
  + Methods
  + File I/O
  + Graphics
* Commenting →Provide comments for all lines of Java code

Do not copy!!! Each assignment will be different. If you are caught copying you will receive a ZERO! DO YOUR OWN WORK!

**ICS3U Course Culminating Activity - Evaluation:**

**Part 1:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Program Description (knowledge)** | Describes program with not enough detail  (1) | Describes program with some clarity  (2) | Describes program with good clarity and detail  (3) |  |  |
| **Description of Programming Concepts**  **(knowledge)** | Describes this use of each programming construct with minimal effectiveness  (1 – 2 – 3 – 4 – 5) | Describes this use of each programming construct with limited effectiveness  (6) | Describes this use of each programming construct with some effectiveness  (7) | Describes this use of each programming construct with considerable effectiveness  (8) | Describes this use of each programming construct with a high degree of complexity.  (9 – 10) |
| **IPO (thinking)** | IPO is missing some detail  (1-2) | IPO is complete with some clarity  (3) | IPO is complete with good clarity  (4-5) |  |  |

**Part 2:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pseudo-Code**  **(thinking)** | Use of pseudo-code to plan the solution with minimal effectiveness.  (1 – 2 – 3 – 4 – 5) | Use of pseudo-code to plan the solution with limited effectiveness.  (6) | Use of pseudo-code to plan the solution with some effectiveness.  (7) | Use of pseudo-code to plan the solution with considerable effectiveness.  (8) | Use of pseudo-code to plan the solution with a high degree of complexity.  (9 – 10) |
| **Flowchart**  **(communication)** | Use of flowchart to plan the solution with minimal effectiveness.  (1 – 2 – 3 – 4 – 5) | Use of flowchart to plan the solution with limited effectiveness.  (6) | Use of flowchart to plan the solution with some effectiveness.  (7) | Use of flowchart to plan the solution with considerable effectiveness.  (8) | Use of flowchart to plan the solution with a high degree of complexity.  (9 – 10) |

**Part 3:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Programming**  **(application)** | **variables & constants** | Applies appropriate use of variables & constants with limited effectiveness.  (1 – 2) | Applies appropriate use of variables & constants with some effectiveness.  (3) | Applies appropriate use of variables & constants with considerable effectiveness.  (4) | Applies appropriate use of variables & constants with a high degree of complexity.  (5) |
| **Decision** | Applies appropriate use of decisions with limited effectiveness.  (1 – 2) | Applies appropriate use of Decisions with some effectiveness.  (3) | Applies appropriate use of decisions with considerable effectiveness.  (4) | Applies appropriate use of decisions with a high degree of complexity.  (5) |
| **Repetition** | Applies appropriate use of Repetition with limited effectiveness.  (1 – 2) | Applies appropriate use of Repetition with some effectiveness.  (3) | Applies appropriate use of Repetition with considerable effectiveness.  (4) | Applies appropriate use of Repetition with a high degree of complexity.  (5) |
| **Arrays** | Applies appropriate use of Arrays with limited effectiveness.  (1 – 2) | Applies appropriate use of Arrays with some effectiveness.  (3) | Applies appropriate use of Arrays with considerable effectiveness.  (4) | Applies appropriate use of Arrays with a high degree of complexity.  (5) |
| **Methods** | Applies appropriate use of Methods with limited effectiveness.  (1 – 2) | Applies appropriate use of Methods with some effectiveness.  (3) | Applies appropriate use of Methods with considerable effectiveness.  (4) | Applies appropriate use of Methods with a high degree of complexity.  (5) |
| **File I/O** | Use of File I/O  (1-2) | Applies File I/O with some effectiveness.  (3) | Applies File I/O with considerable effectiveness.  (4) | Applies File I/O with a high degree of complexity.  (5) |
| **Graphics/ User Interface** | Applies UI with limited effectiveness.  (1) | Applies UI with some effectiveness.  (2) | Applies UI with considerable effectiveness.  (3) |  |
| **Comments**  **(communication)** | -Needs more commenting!  (1 - 2 - 3 - 4 - 5) | -Some lines of Java code are commented  (6 ) | -Most lines of Java code are fully commented with detail  (7) | -All lines of Java code are fully commented with detail  (8 - 9) | -All lines of Java code are fully commented with a high degree of detail  (10) |
| Knowledge and Understanding (20%): \_\_\_\_\_   * **[ /3] Program Description** * **[ /10] Description of Programming Concepts**   Thinking (25%): \_\_\_\_\_   * **[ /5] IPO** * **[ /10] Pseudo-Code**   Communication (15%): \_\_\_\_\_   * **[ /10] Flowchart** * **[ /10] Commenting**   Application (40%): \_\_\_\_\_   * **[ /33] Programming** | | | | | |

**Part 2**