Practical project

420-D02-SU

Introduction to structured programming

AEC Programming, Networks and Security (LEA.5F)

AEC Programming and Web Technologies (LEA.5G)

AEC Video Game Programming (LEA.CU)

**Evaluation weight:**

25% of the final grade

**Submission specifications:**

* **Due date: morning of the final exam**
* Name the program correctly: Library + *name1* + *name2* [ + *name3* ]
* The code of the program and any dependencies
* The compressed file deposited in Dropbox in the folder designated for this purpose

**Description:**

Create the old arcade classic game “Snake”. Generates a grid by X by Y, and places a single morsel of food as well as a snake represented by H (head) and X (body parts). User input (WASD) will control the snake. When the snake eats a piece, it will grow in length (See internet for game rules)

**Remarks:**

* The grid created is defined by constants X & Y
* The edges of the map have a visible boundary (#)
* The snake is placed in the map at the start
* The snake is controlled by the WASD keys
* A piece of food is placed in the map
* If the snake touches the food, it grows in length.
* If the snake touches it’s tail or the end of the map it loses
* The snake is always moving
* When food is eaten, a new food piece is placed on a randomly available tile
* When the game is over, it displays the score, pressing enter will restart the round

**Evaluation:**

The project will be graded according to the following criteria:

* **Exactitude of the program:**Does the program do what it is supposed to do?
* **Visual appearance:**All text displayed to the screen should be well arranged and written in proper English.
* **Input validation:**The program should properly handle errors that can occur during data input.
* **Structure of the code:**The program should be split up into functions according to the relevant needs.
* **Arrangement and clarity of the code:**The code should be properly indented, with relevant comments where needed, and it should respect programming conventions (variables in camelCase, constants in UPPER\_CASE\_SEPARATED\_BY\_UNDERSCORES). Hard-coded values should be put into constants (magic numbers).

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| **Tasks to accomplish** | **Points** |
| Respect submission specifications | 1 |
| Program compiles and executes | 1 |
| Structure of the code (comments, etc) | 2 |
| Grid is created X by Y | 1 |
| Grid has visible boundary | 2 |
| Crashing into boundary ends game | 1 |
| Snake is placed at start, moves | 1 |
| Snake can move in all directions | 3 |
| Snake responds to input WASD | 3 |
| Snake leaves tail behind as it moves | 3 |
| Food is randomly placed on map | 1 |
| Food is consumed by snake | 1 |
| Food is replaced when snake eats it | 1 |
| Snake grows when eat food | 2 |
| Snake hit tail ends round | 1 |
| Round end score screen | 1 |
| Exit the application | 1 |
| Input validations | 1 |
| Global evaluation (teamwork, effort) | 2 |
| **Total** (with bonus in parentheses) | 29 |