

**CHIC 4010/ICOM 4015: Advanced Programming Fall 2017**

**Programing assignment 2: dnMegaMan<sup>1</sup>**

Due date: June 17, 2017 11:59PM

In this project you will work in pairs. The objective of the project is to add to one simplified version of the famous MegaMan game one or more levels that offer a significantly greater degree of difficulty. The new levels will begin once the player destroys 5 additional asteroids on the previous level or press the 'n' key. You should start by studying the software architecture of the game to determine the optimal way to integrate the new levels in a modular way, making minimal changes to the existing base code and following the spirit of the original design. Your new levels must have a high degree of originality and cannot be the same as those of the other teams.

Video of a commercial version of MegaMan: <https://www.youtube.com/watch?v=C9t5uPrRyig>

**Minimum requirements to be implemented in at least one of the new game levels:**

- Add a key (n) to advance to the next level directly (for testing purposes)
- Add underground asteroids (several on the screen at the same time)
- Make asteroids out of random positions
- Make each asteroid move at a random speed and direction
- Place the platforms in other patterns
- Add background images to the levels
- Add enemy characters that shoot MegaMan
- Be able to make MegaMan rotate and shoot in both directions
- To be able to turn off or on the music at the player's discretion by pressing the "m" key

**Organization of two-person teams**

You must select a DIFFERENT teammate whom you had in other projects. If you have difficulty finding a teammate, contact the teacher as soon as possible.

**Code repository in GitHub Classroom (we will not use your personal GitHub account)**

Once you select your teammate, you must create your repository in GitHub Classroom by entering the following link using your GitHub account:

<https://classroom.github.com/g/L1aFe4Pw>

The first team member to register must name the team. The second one to register must select the team of the partner who registered first so that both have permission to access the repository. The repository will be initialized with the base code automatically. From now on you can copy the repository URI to import it into Eclipse and start collaborating using Git.

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<sup>1</sup> dnMegaMan=Definitely Not MegaMan. Agradecemos Juan Miguel Agosto Rosa la gentileza de permitirnos utilizar su juego MegaMan, inspirado en el juego VoidSpace original de René Badía Reyes.

### **Collaboration Guides (SAY NO TO PLAGIARISM)**

During the project it is expected that the members of each team collaborate equally in the work. If you have difficulty contacting or agreeing with your partner and cannot handle it, you should contact the teacher as soon as possible. Each team member is expected to upload their individual contributions (or commits) to the repository through their own GitHub account. It will be assumed that the contribution of each team member will be the one that has uploaded to GitHub with their account.

Dialogue with your teammates from other teams and share / discuss ideas about the assignment is allowed if UNDER NO CIRCUMSTANCES YOU USE ANOTHER STUDENT OR SOURCE CODE WITHOUT DOING DUE RECOGNITION TO THE ORIGINAL AUTHOR OF SAME. All projects must be original of each team. Violation of this rule will constitute a greater lack of academic honesty and will be addressed as specified by the record. A good way to avoid plagiarism is to not show or share your code with other people.

### **Some optional ideas to make your new levels more interesting and fun:**

- Add a "power ups" such as bombs that eliminate all enemies, shields, special bullets.
- Add indestructible obstacles that the player must dodge
- Add larger asteroids, which when you shoot them break into several small
- Add an animation of "thrusters" / rockets to MegaMan when you press "Shift" which is the "boost" that makes MegaMan go faster
- Add "heat seeking" missiles that chase ships
- Add a giant enemy ship that requires more than one impact to destroy it.
- Purchases of "power ups" and / or lives with points earned
- Make asteroids move in nonlinear paths
- Change of animation according to the situation (for example MM stopped vs. Megaman shooting) (With the images that are already in the program the ones you want to add)
- Create a method that simulated gravity in the game (The Gravity and Fall method)
- Unleash your imagination and creativity and, above all, have fun learning!

### **Instructions to submit your project electronically (IMPORTANT)**

The staff will correct the project by importing from the repository the latest version that the team has uploaded on or before the deadline. You do not need to send us the URI or give us access to your repository