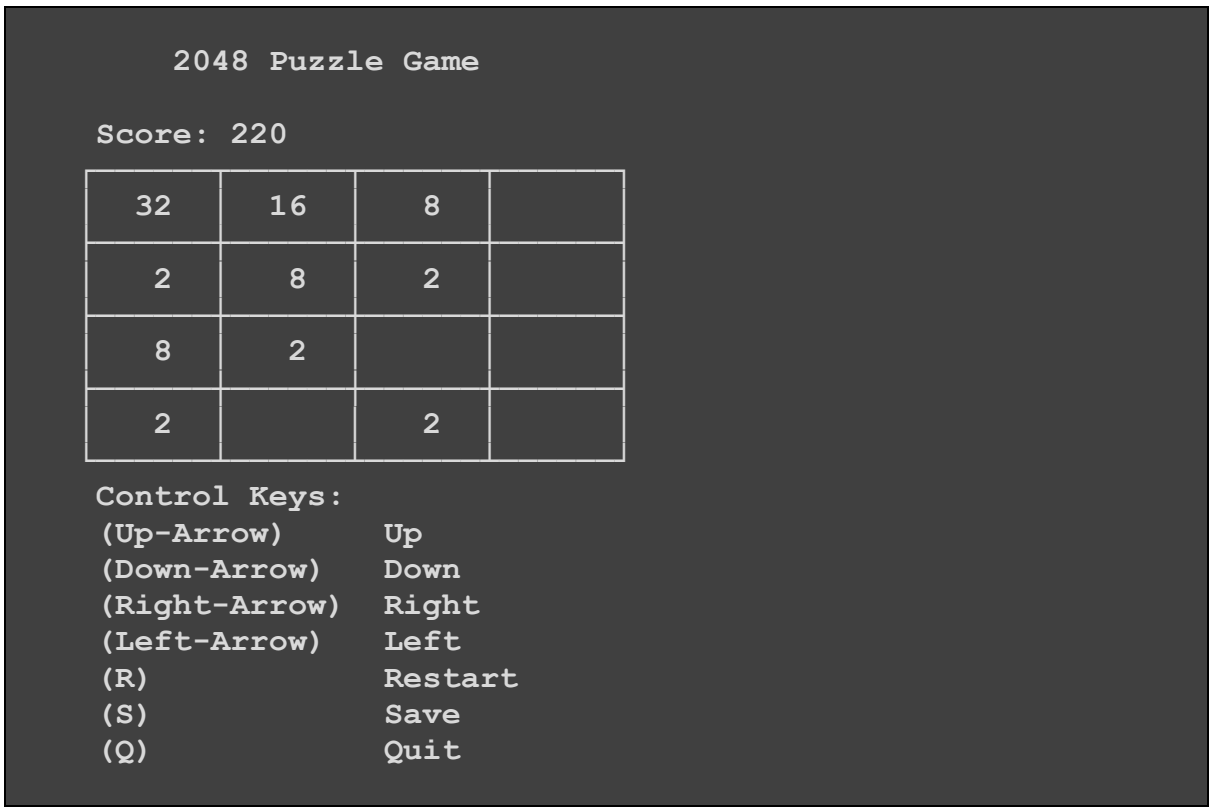
2048 Sliding Tiles Puzzle

1. Project Description

The objective of the project is to implement a console-based video game known as "2048 puzzle game" by implementing the object-oriented programming (OOP) concepts taught in class. The program must implement:

1) Decent console-based interface
2) Input interaction from keyboard
3) Score calculation
4) End game with failure/win detection
5) Possibility to restart the game
6) Possibility to quit the game and save it for a later attempt

The programmers have a large freedom to implement the interface, as well as the controls. An example (just an example) of possible interface is shown here. It is duty of the programmers to study an efficient and user-friendly interface.



2. Grading Criteria

The project presented by each team will be graded based on the following set of rules:

- **Degree of programming maturity.** The instructor will assess the working of the program using a set of test inputs. If the program passes all the test inputs, then the team will score complete grade for this section.
- **Incorporating OOP concepts.** The students should apply the OOP concepts taught in class within their project. This should be clearly explained in the final report. The use of class diagrams is welcome.
- **Teamwork.** Each team member will be asked questions on his/her contribution and will be required to comment and explain certain features to confirm the claim. The final report must explain how it has been organized the teamwork.

3. Preparing the Final Presentation

Teams (made by 3 or 4 students) should prepare the following items for their final power-point presentation, to be presented during a hybrid session (hybrid because Prof. Dadlani will be online):

- All members of a team should be present for the final presentation at the time slot that will be announced later. No excuses will be accepted for any delay.
- Each team should prepare a short presentation, of maximum 10 slides, showing their design approach and their management of teamwork.
- Each team should upload their final working code and report on Moodle before the deadline. No exceptions will be accepted by any means.
- Each team is required to run and explain their program in order to be assessed. So, make sure you have the program ready on your laptop.

4. Final Note and Tips

Please read well the following notes and suggestions:

- Each group must upload a zip folder containing: the code files, the report in pdf, and the power point presentation. Only one representative student, in each group, must upload the project files.
- All the uploaded programs will be checked for plagiarism. If found, all team members involved will be given a straight 0 and reported to the school.
- To familiarize to the mechanism of the 2048 puzzle game, I suggest trying and playing it online at this link: https://play2048.co/
- A class diagram is a particular kind of UML diagram that is usually used by professional programmers to illustrate the class functioning and their hierarchy. If you are interested of using such diagrams in your report, a brief but complete explanation can be found at the following link: https://www.tutorialspoint.com/uml/uml_class_diagram.htm .
- Do not start the project the day before the deadline. It would be too late.