

CS-154

FINAL PROJECT



TEAM MEMBERS:

- SUSHANT SHIVRAM HIRAY (110050009)
- SANCHIT GARG (110050035)
- ANMOL GARG (110050020)

DESCRIPTION OF THE PROBLEM:

Problem is to make a single player game PACMAN. This game has been built with a user-friendly interface. Pacman moves in a defined region. Objective of the game is to eat all dots before pacman is eaten by the ghosts specified no. of times. There are 4 ghosts which are after pacman. Targets of all 4 ghosts are defined differently but depend on the pacman position such that they try to surround the pacman.

OVERALL IDEA OF THE DESIGN:

- The object oriented programming is extensively used.
- We have also used both the paradigms of programming taught in this course namely, functional programming and programming with states.
- Classes used are 'Grid Class' , 'Square Class' , 'Pacman Class' , 'Ghost Class'.

- Game area is defined as a 2-D vector.
- Graphics library used are racket/gui and legacy
- Grid-class has complete grid as 2-D vector.
- Target for ghosts are decided such that they surround pacman from all directions.
- As target is decided ghosts use AI (A* algorithm is used).
- We have extensively used vectors for the A* algorithm representation.
- Each Ghost has its different characteristic so there are 4 variants of AI corresponding to each ghost.
- Higher Order Functions have been used almost everywhere in the code.
- The game uses extensive graphics to feature animation in it.

SAMPLE INPUT AND OUTPUT:

- To start the game clicking is required at 'Start Game'.
- Since the game is GUI Interface, it requires only arrow-keys as input at the interface and according to that the pacman starts moving in the input direction as the output.
- After all lives of pacman are over, 'Game-Over' screen is displayed along with scores on the top.

LIMITATIONS AND BUGS:

Bugs:

- If any ghost crosses pacman just at any corners of the grid, the pacman doesn't die.
- Rarely it takes time to load all the images in proper time.

Limitations:

- Due to lack of time we could, 't implement 'Frightened' mode of ghost in which the pacman after eating the red dots can kill ghost, and ghost are regenerated away from pacman.

OTHER POINTS OF INTERESTS:

- This game has a good scope of improvement on its current functionalities
- We can overcome the limitations discussed above.
- Increase the no. of levels by varying the advancity of the AI.