

PacMan Requirements

SEM Group 25

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1 Must have

1.1 Functional

- Authentication using a username and password, via a database.
- The score of each play should be recorded in a database.
- At the end of each play, the user should be able to enter his/her name together with the recorded score.
- At the end of each play, the game should show the top 5 scores that have ever been recorded.
- There are four ghosts, each with their own unique AI (according to the original PacMan)
- There is a PacMan
 - PacMan can move, using the keyboard
 - PacMan can collect pellets, by moving into them
 - PacMan dies when hit, when moving into a ghost
- There is a level with walls and pellets
 - Eating pellets gives points
 - You can't go through walls
 - If you go off the board, you appear on the other side
 - Ghosts can't go through walls either
- Collision - When PacMan collides with a ghost you die and when he collides with a pellet, you get a certain amount of points

1.2 Non-Functional

- Use SQL and JDBC driver for the database
- Use prepared statements in Java to avoid SQL code-injection vulnerabilities
- JavaFX for UI and graphics
 - Have a canvas to draw the gameboard on

- Walls, PacMan, ghosts, pellets can all be drawn
- Keyboard control over PacMan through JavaFX Key Listener
- Tests for at least 75% of meaningful (branch) coverage

2 Should have

2.1 Functional

- Multi-levels for PacMan - when you collect all pellets in a level, you go to the next
- PacMan mouth animation - when PacMan moves, his mouth opens and closes
- Map parser - maps can be read from a txt file
- Multiple lives - when PacMan dies, you lose a life, losing all lives means game over
- Menu - there is a menu on which you can see high scores and start the game

2.2 Non-Functional

- Implementing a relevant code structure using various Design Patterns
- Using Mockito as a testing framework
- It runs 30+ fps on a normal laptop

3 Could have

3.1 Functional

- There are big pellets PacMan can eat
 - This will allow PacMan to eat ghosts and earn points
 - Ghosts turn blue for a certain amount of time until it ends
- Local multiplayer - moving multiple PacMen on the same keyboard
- Sounds - sound effects when eating pellets, moving, getting hit, etc.
- Background Music - music for every level
- Sprite designs - more interesting sprites for PacMan and the ghosts
- Fancy animations - the ghosts have moving 'tentacles'
- Easy/Hard modes - you can set the mode to easy/hard and different things become easier/harder
 - You have more/less lives
 - More/Less points

- More/Less ghosts
 - More/Less pellets
- Different types of pellets / bonuses - maybe even powerups
 - An example is a bottle pellet, this switches the movement keys
- Easter egg - maybe some easter eggs in certain levels, if you do certain things
- 95% test coverage
- Achievements - when you do certain difficult things, you get an achievement
- Styles - there are different styles that change the look of the game e.g. 'retro'
 - Unlockable - the styles are unlockable when you get certain achievements

4 Won't have

- Social media integration
- Setting up profile picture
- Chatting with other player
- Online multiplayer
- Microtransactions