

HY-150

1st Assignment

17/02/2023 - 03/03/2023

In this assignment you are asked to implement a simplified version of the game “Town of Salem”.

Game description:

In this game 7 players participate, each with a role. The roles are: 1) Citizen 2) Doctor 3) Gangster. In the beginning of the game a role is assigned to each player in a random way. There is one doctor, one gangster and the rest are citizens. The game is split into 2 phases, day and night.

In the night phase, the citizens are “asleep” and the gangster selects which player has to leave (lose). Then, the doctor decides which player to save from the gangster. If the doctor selects the same player that the gangster chose, the player is saved and he does not lose. At the end of the night it is announced which player lost (if a player has lost).

In the day phase, the players vote one of the rest players to quit the game. The player with the most votes loses.

The cycle of day and night repeats until the gangster loses or all the players lose.

If the gangster loses while there are still players left the citizens win. If there are two players left and one of them is the gangster, the gangster wins.

Part A) Initialization [10%]

Create a function that initializes the players assigning the gangster and the doctor randomly. You can use vectors to store the players.

Part B) Info Menu [15%]

Create a menu that will appear before the start of each cycle and it will give the following options to the user:

- Print all the players that are in the game
- Print all the players that are in the game and their roles
- Print all the players that have lost
- Print the last player that lost

Part C) Night-Phase [15%]

Implement the night phase. The program will need to inform the users that the night phase begins and who is the gangster. Then it will ask from the gangster to select the player that will lose and finally, it will ask from the doctor which player to save. If both the gangster and the doctor selected the same person then none loses that night.

Part D1) Voting System [30%]

Implement a voting system. The program must calculate the votes of each player and decide if the result is final or if the vote must be repeated. The rules of the voting procedure are:

- In case there is a player with a clear majority then the voting ends and that player is selected.
- In case there is a tie-break between 2 or more users the voting procedure is repeated only with the users that had a tie-break as options.
- If all the players have the same number of votes, the voting procedure ends without a “winner”.
- In case there has already been a repetition due to the second rule and there is still no player with the majority of votes, the voting procedure ends without a “winner”.

Ερώτημα 4β) Day-Phase [15%]

Implement the day-phase. The program will have to inform the user that they day phase begins. Then it will ask from each player that is still in the game to vote another player to leave. When the procedure of voting ends the result will be printed, meaning which player leaves or that there was no majority.

Ερώτημα 5) Game Flow [15%]

Implement a main function that uses the above to create the game that is described in the beginning of the assignment, and in the end, it will print which player(s) was the winner.

Note: It is important to use Exceptions for all inputs from the user, to print relative messages about what was wrong and finally, request again from the user for new input.