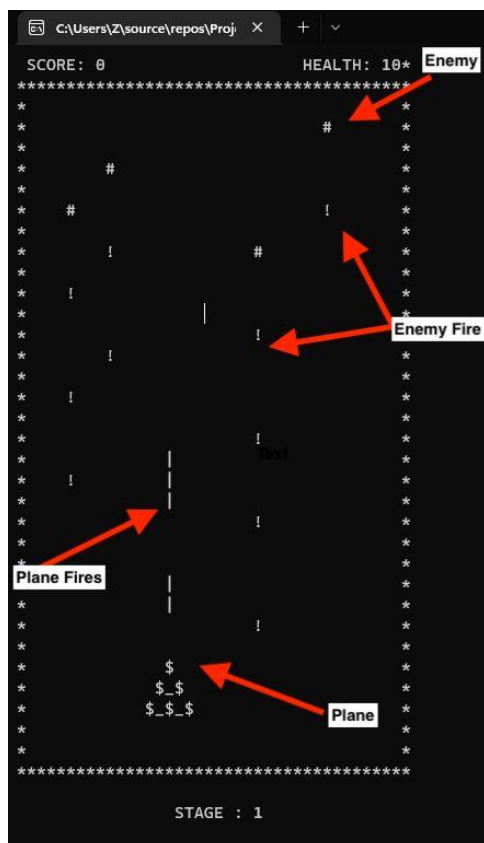# Programming Fundamentals Lab
## Project Manual

## Space Shooter Game

## Instructions:

- The game should be made on **C++**.
- There should be no **Plagiarism**.
- If anyone is found having code copied from any external source, he will be marked **directly zero**.
- Usage of **gotoxy function** is **not allowed**. If anyone uses gotoxy function, that group will be awarded zero marks.
- Usage of **vectors** is **not allowed.**
- Everything you studied in PF lab is allowed. You must submit a **word file**, with the code and screen shots of the working of your project, and your **dev c++ project folder**.

Game: You have to make a space shooting game for example shown in the pic below.
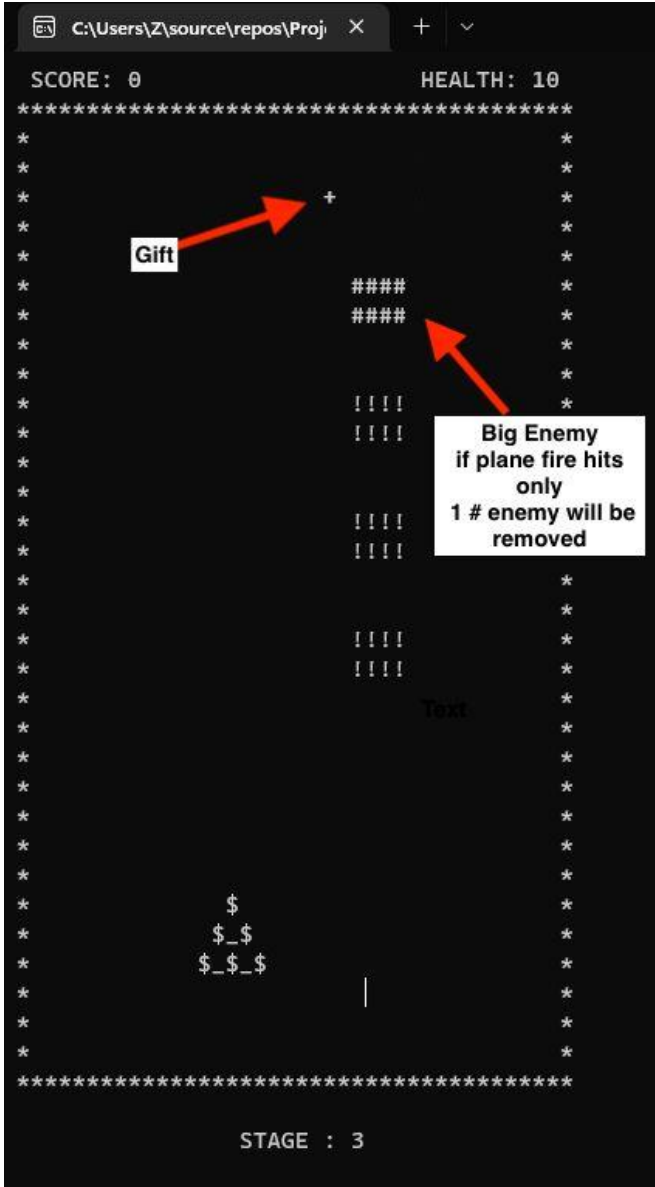
## Stage 01:

1. There will be enemies coming downwards randomly.
2. There will be a plane that you will control by keyboard up/down/left/right keys.
3. The Plane will fire on Enemies when you press space key on the keyboard.
4. If the plane fires hit the enemy the score of the player will be increased by 2 points and that enemy will be removed.
5. Enemies will also fire on the Plane. (They fire automatically after some seconds)
6. If enemy fire or enemy itself collides to your plane the health of the plane will be decreased.
7. If 5 enemy fires connects to the plane the game will be over.
8. Stage 1 will end when the player score is 30 and after stage 1, the player will be taken to the next stage (stage 2).
9. Gifts will pop up randomly at any place in both stages (stage 1 & 2) for 3 to 4 seconds if your plane collides with these gifts, you will get the following bonuses randomly (Remember that one gift will only give you one of the following bonuses):

   - Plane health increases by +1.
   - Score Increases by 10.
   - Score Increases by 20.
   - Score Increases by 15 and plane health increase by +2.

## Stage 02:

This is the final stage of your game.

- Enemies will come in a row like in the given pic below.
- Gifts will also continue to pop up randomly in this stage.
- If you kill all enemies coming in a row you will win the game.
- When you win the game, "You won the game" will be displayed.

## Note:

- You need to store the $1^{st}$, $2^{nd}$, and $3^{rd}$ highest score in a txt file by using file handling.
- You must use **functions, 1D and 2D arrays.**
- If your game works in a different way and not follows the above conditions, you will never get the maximum marks. So, make sure to fulfill the above conditions/instructions.

Good luck :D