National University of Computer and Emerging Sciences, Lahore Campus

Course:	Programming Fundamentals	Course Code:	CS 118
Program:	BS(Computer Science)	Semester:	Fall 2020
Due Date	20-Dec-2020 at 11:59 pm	Total Marks:	-
Section:	CS-1G	Page(s):	2
Type:	Project	Weightage	15

Important Instructions:

1. Submit your solution named as your roll number, i.e., 20_1111.cpp. Do not zip your file.
2. You are not allowed to copy solutions from other students. We will check your code for plagiarism using plagiarism checkers. If any sort of cheating is found, negative marks will be given to all students involved.
3. If we find that you have copied code from the Internet, you will get negative marks.
4. Late submission of your solution is not allowed

Requirements of PF Project:

1. Colors should be used.
2. Project Implementation will be done individually.
3. Graphics library is not compulsory to use. However, you can use it if you want.
4. You cannot use any concept not taught in the class, such as dynamic memory, vectors, maps, string class, etc.
5. You can use structs.

You can develop any of the two following games:

1. **Pac-man:**
   Create a pac-man game which fulfills the following requirements:
   1. There are 2 enemies which follow pac-man in order to kill him. Your pac-man will be killed when one of the enemies touches the pac-man. Each enemy should have a different color. The enemies will be placed away from each other.
   2. Pac-man will get score when he eats dots.
   3. A few mazes. (atleast 5 mazes of reasonable length placed horizontally.)
   4. When the player completes one level, another level will start. The levels will be differentiated from each other by the placement of mazes. So the mazes will be placed randomly in horizontal direction.
   5. Pac-man will have 3 lives by default. There will be few special dots which will increase the life of pac-man. (These dots will be rare, i.e., zero, one, or two in a particular level)

2. **Break the Bricks:**
   The requirements for this game are:
   1. There should be different colors of bricks (at least 4 different colors).
   2. There should be reasonable number of bricks per level, i.e. at least 30. Each brick should have a reasonable length and width.
   3. Some bricks will give more score if the ball hits them. You can differentiate which brick will give more score by the color of the brick. For example, a white brick can give more score than a red brick, etc.

4. When the player completes a level, another level will start. Levels will be differentiated from each other by the color of the bricks. So, each brick will be assigned a color randomly. You can fix the position and number of bricks for each level.
5. There will be three lives. The life of the player will increase if the player hits a certain brick. The life package will fall from the brick which the player has to pick. Such packages will be rare (i.e., zero, one, or two in a particular level). The life packages should be placed randomly.

Note: Divide your code into different functions to make coding easier. It will also reduce redundancy in your code.