CPS 400 Final Report

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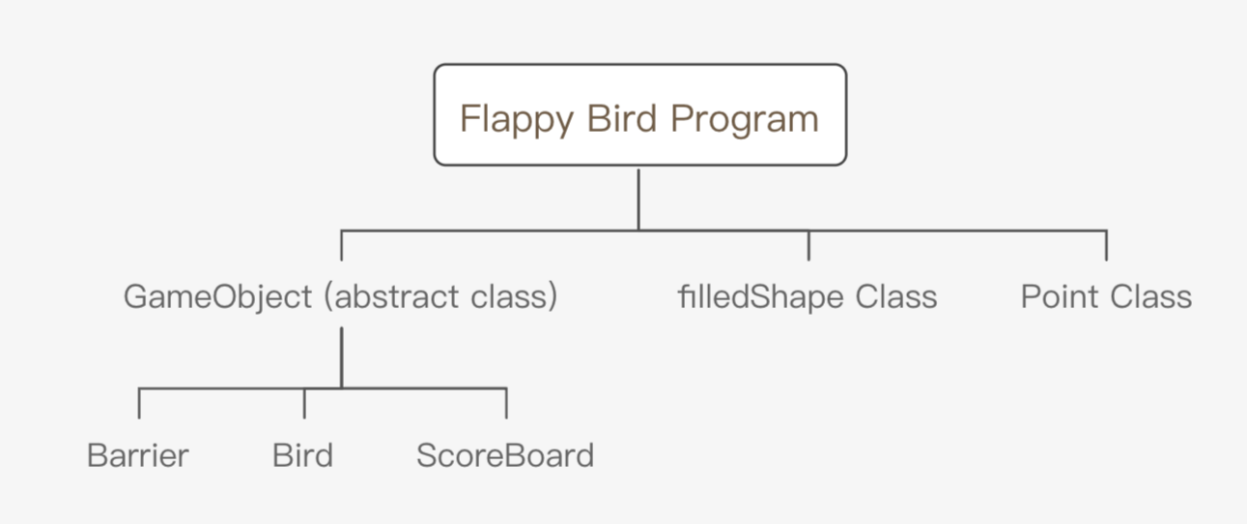
Overall structure

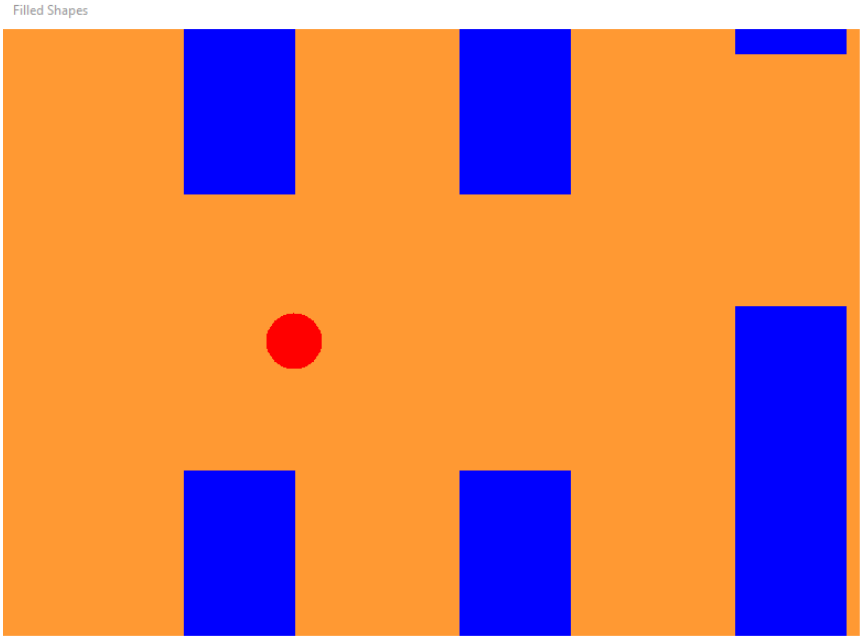


Brief Game Play

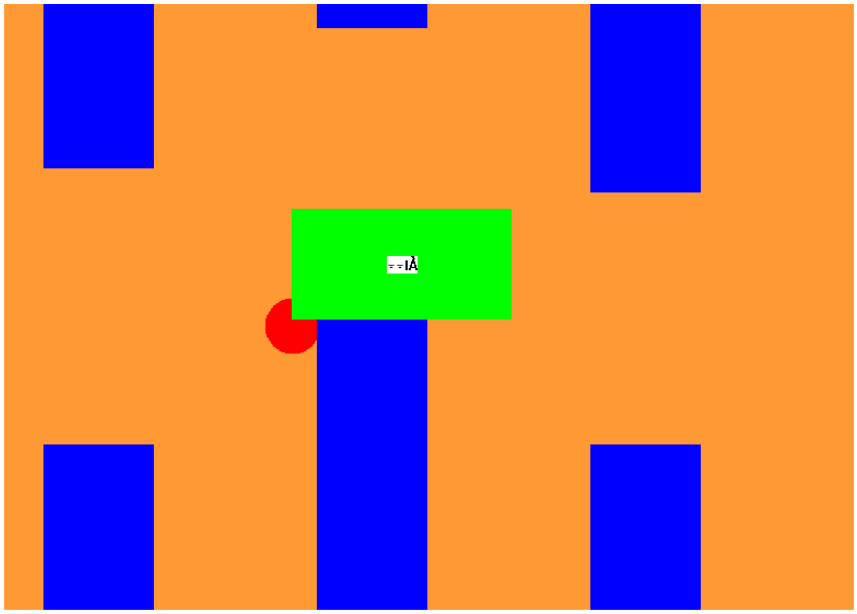
Introduction:

As the below figure shows: the red circle which movement is controlled by user input (w/s or up arrow/down arrow) is bird and the blue rectangle moving automatically are barriers. User input directions to dodge the barriers and when touch the barriers, game over and a green rectangle shows meanwhile user can get their score in the Windows Console.

Running interface



Game over interface



Game score interface

```
score:6
first barrier error

\\hd.ad.syr.edu\01\ee57fe\Documents\Desktop\FilledShapes_Lib (2)\FilledShapes_Lib (2)\FilledShapes_Lib\Debug\FirstTry.ex
e (process 8784) exited with code -1.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the conso
le when debugging stops.
Press any key to close this window . . .
```

Required components

All required components have been implemented!

- Classes
    1. GameObject Class: This is the base class for game objects. Which create the game window and define several virtual functions
    2. Barrier class: This class basically generate moving barriers with random heights.
    3. Bird class: This class mainly generate the bird
    4. ScoreBoard class: This class will generate a scoreboard when the game ends.
    5. FilledShape class: This class is provided
    6. Point class: This is included in the filledShape class.
- Inheritance
  The GameObject is an abstract class, and Barrier, Bird, ScoreBoard are all public inherited from GameObject.
- Composition
    1. Inside the GameObject, filledShape class is composited.
    2. Inside the Barrier, Bird and ScoreBoard, point class is composited.
- Polymorphism
    1. GameObject class public function:Draw(POINT p), ClearObject(POINT p, int param), GetPos()
    2. Downcasting at FlappyBird.cpp
- Operator overloading

1. Inside the Barrier class, operator “==” and “!=” are overloaded. “==” for the judgement of object collision. If the bird obejct is overlapping with barrier objects, == return true.

- Exception Handling
  OutOfBoundException class is constructed with out of bound exception throw.

Extra credit (Maybe)

- User Interaction: w/s or up arrow/down arrow
  Using what user inputs from keyboard to control the bird direction to dodge barriers.