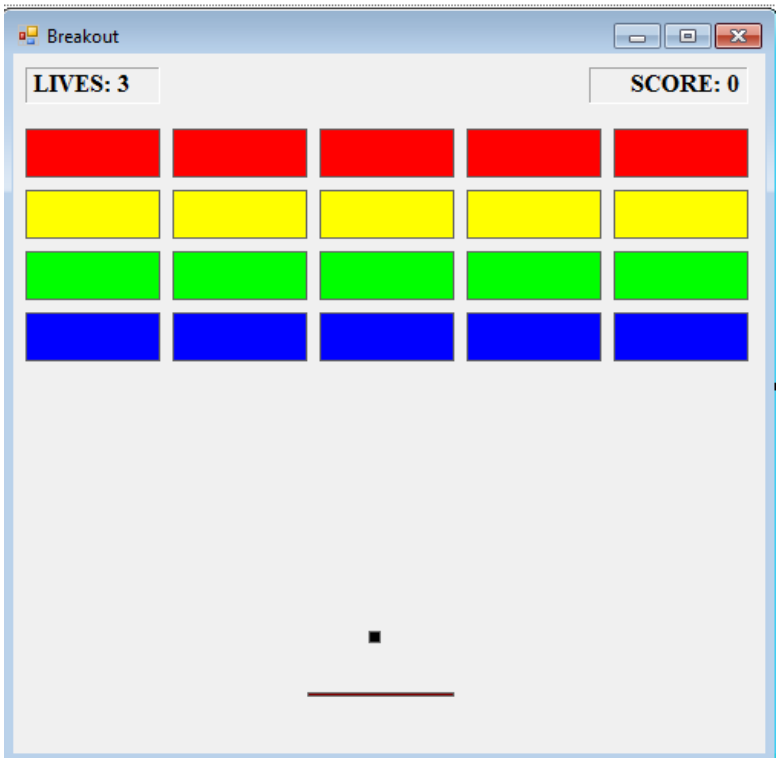
Name: **Session:**
Programming II
Lab Exercise 2.24.2023
Breakout Project

You will create the following Form. Your form will contain 20 blocks which are PictureBoxes. It will also contain two PictureBoxes (Ball and Paddle) as well as a Timer control and two labels to display Lives and Score.



1. Declare the following variables global to your Form.

```
int intSpeedX = 2;
int intSpeedY = -2;
int intScore;
int intLives = 3;
int intAllGone;
```

2. Add the following code to your Form1_Load subprogram.

```
timer1.Enabled = true;
```

3. Add the following code to the timer1_Tick event.

```
AllGone = 0;
CheckCollisions();
if (AllGone == 1)
{
   timer1.Enabled = false;
   MessageBox.Show("Congratulations, you finished the game");
}

BallX += SpeedX;
if (BallX < 3 || BallX + Ball.Width > this.Width)
   SpeedX = -SpeedX;

BallY += SpeedY;
if (BallY < 3)
   SpeedY = -SpeedY;

if (BallY + Ball.Height > this.Height - 5)
{
   timer1.Enabled = false;
   UpdateLives();
   BallX = 232;
   BallY = 376;
   SpeedX = 2;
   SpeedY = -2;
   if (Lives < 1)
   {
      MessageBox.Show("You have lost the game. OH NO!");
   }
   else
   {
      MessageBox.Show("You missed. OH NO!");
      timer1.Enabled = true;
   }
}
```

4. Add the following code to the Form1_MouseMove event

```
Paddle.Left = e.X - Paddle.Width / 2;
```

5. Add the following functions to your Form code. Note the Overloaded version of CheckCollision. If you do not know what overloading is, look it up.

```
    public void CheckCollisions()
{
    CheckCollision(Paddle, false);
    CheckCollision(Red1);
    CheckCollision(Red2);
    CheckCollision(Red3);
    CheckCollision(Red4);
    CheckCollision(Red5);
    CheckCollision(Yellow1);
    CheckCollision(Yellow2);
    CheckCollision(Yellow3);
    CheckCollision(Yellow4);
    CheckCollision(Yellow5);
    CheckCollision(Green1);
    CheckCollision(Green2);
    CheckCollision(Green3);
    CheckCollision(Green4);
    CheckCollision(Green5);
    CheckCollision(Blue1);
    CheckCollision(Blue2);
    CheckCollision(Blue3);
    CheckCollision(Blue4);
    CheckCollision(Blue5);
}

public void CheckCollision(PictureBox src , Boolean Hide)
{
    if (src.Visible == true)
    {
        if (BallX > src.Location.X && BallX < src.Location.X +
src.Size.Width &&  Ball.Location.Y > src.Location.Y && Ball.Location.Y <
src.Location.Y + src.Size.Height)
        {
            SpeedY = -SpeedY;
            UpdateScore();
            if (Hide)
                src.Visible = false;
        }
        AllGone += 1;
    }
}
```

```
public void CheckCollision(PictureBox src)
{
   //call the original version
   CheckCollision(src, true);
}

public void UpdateScore()
{
   Score += 10;
   Label2.Text = "SCORE: " + Score;
}

public void UpdateLives()
{
   Lives -= 1;
   Label1.Text = "LIVES: " + Lives;
}
```

6. Add the following Properties to your Form code.

```
public int BallX
   {
      get
      {
         return Ball.Left;
      }

      set
      {
         Ball.Left = value;
      }
   }

   public int BallY
   {
      get
      {
         return Ball.Top;
      }
      set
      {
         Ball.Top = value;
      }
   }
```

```
public int Lives
{
    get
    {
        return intLives;
    }
    set
    {
        intLives = value;
    }
}

public int SpeedX
{
    get
    {
        return intSpeedX;
    }
    set
    {
        intSpeedX = value;
    }
}

public int SpeedY
{
    get
    {
        return intSpeedY;
    }
    set
    {
        intSpeedY = value;
    }
}
```

```
public int Score
{
   get
   {
      return intScore;
   }
   set
   {
      intScore = value;
   }
}

public int AllGone
{
   get
   {
      return intAllGone;
   }
   set
   {
      intAllGone = value;
   }
}
```

When you have your program working, submit a screenshot of your running program, attach to this sheet and turn in.