Guess-The-Number
While Loop Sandwich

Make the guess-the-number game repeat until the user wants to quit.

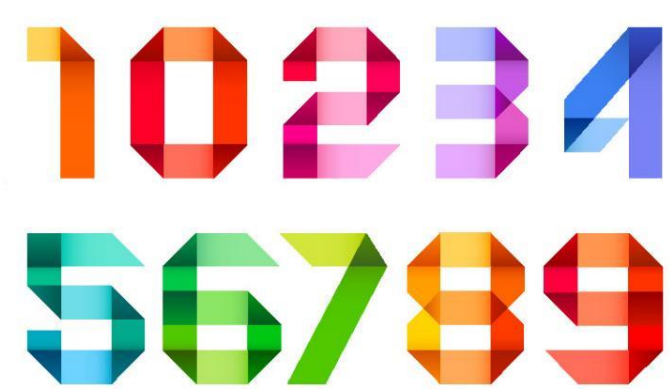
It should play something like this:

```
Guess the number (1-10): 1
Nope. Try again.
Guess the number (1-10): 2
Nope. Try again.
Guess the number (1-10): 3
Nope. Try again.
Guess the number (1-10): 4
Nope. Try again.
Guess the number (1-10): 5
Nope. Try again.
Guess the number (1-10): 6
Nope. Try again.
Guess the number (1-10): 7
Right! Good job.

Play again? (y/n) y

Guess the number (1-10): 1
Nope. Try again.
Guess the number (1-10): 2
Nope. Try again.
Guess the number (1-10): 3
Right! Good job.

Play again? (y/n) n
```



Here is the base code:

```
public class Game1
{
    public static void main (String args[])
    {
        new Game1 ();
    }

    public Game1 ()
    {
        int num1 = (int) (Math.random () * 10) + 1;
        int ans1 = IO.inputInt ("Guess the number (1-10): ");
        while (num1 != ans1)
        {
            System.out.println ("Nope. Try again.");
            ans1 = IO.inputInt ("Guess the number (1-10): ");
        }
        System.out.println ("Right! Good job.");
        System.out.println ();

    }
}
```

Magic 8 Ball
While Loop Sandwich

Make the Magic 8 Ball game repeat until the user wants to quit.

It should play something like this:

```
Magic 8 Ball

Enter a yes or no question: Will it rain today?

The Magic 8 Ball has considered your question.
Here is its response:
  without a doubt

Play again? (y/n) y

Enter a yes or no question: Will it rain on the weekend?

The Magic 8 Ball has considered your question.
Here is its response:
  my reply is no

Play again? (y/n) n

Thank you. Have a nice day.
```

Here is the base code:

```
public class Game2 {
    public static void main (String args[]) {
        new Game2 ();
    }

    public Game2 () {
        System.out.println ("Magic 8 Ball\n");

        int num2 = (int) (Math.random () * 10) + 1;
        String ques = IO.inputString ("Enter a yes or no question: ");
        System.out.println ("\nThe Magic 8 Ball has considered your question.");
        System.out.println ("Here is its response:");

        if (num2 == 1)
            System.out.println ("  outlook not so good");
        else if (num2 == 2)
            System.out.println ("  don't count on it");
        else if (num2 == 3)
            System.out.println ("  my sources say no");
        else if (num2 == 4)
            System.out.println ("  without a doubt");
        else if (num2 == 5)
            System.out.println ("  reply hazy, try again");
        else if (num2 == 6)
            System.out.println ("  it is certain");
        else if (num2 == 7)
            System.out.println ("  my reply is no");
        else if (num2 == 8)
            System.out.println ("  as I see it yes");
        else if (num2 == 9)
            System.out.println ("  most likely");
        else if (num2 == 10)
            System.out.println ("  you may rely on it");
        else if (num2 == 11)
            System.out.println ("  cannot predict now");
        else if (num2 == 12)
            System.out.println ("  outlook good");
        else if (num2 == 13)
            System.out.println ("  better not tell you now");
        else if (num2 == 14)
            System.out.println ("  very doubtful");
        else if (num2 == 15)
            System.out.println ("  yes definitely");
        else
            System.out.println ("  concentrate and ask again");

        System.out.println ();

        System.out.println ("Thank you. Have a nice day.");
    }
}
```

Speed fines are not fine!

Problem Description

Many communities now have "radar" signs that tell drivers what their speed is, in the hope that they will slow down.

You will output a message for a "radar" sign. The message will display information to a driver based on his/her speed according to the following table:

km/h over the limit	Fine
1 to 20	$100
21 to 30	$270
31 or above	$500

Input Specification

The user will be prompted to enter two integers. First, the user will be prompted to enter the speed limit. Second, the user will be prompted to enter the recorded speed of the car.

Output Specification

If the driver is not speeding, the output should be:

```
Congratulations, you are within the speed limit!
```

If the driver is speeding, the output should be:

```
You are speeding and your fine is $F.
```

where F is the amount of the fine as described in the table above.

```
Enter the speed limit: 40
Enter the recorded speed of the car: 39
Congratulations, you are within the speed limit!
Continue? (y/n) y

Enter the speed limit: 100
Enter the recorded speed of the car: 131
You are speeding and your fine is $500.
Continue? (y/n) y

Enter the speed limit: 100
Enter the recorded speed of the car: 120
You are speeding and your fine is $100.
Continue? (y/n) n
```