1. Modify the following code to protect it from crashing if the user enters an input that is not a number:

```
import java.util.Scanner;
public class ReadIntegerStrings
{
        //---------------------------------------------------------------
        //  Reads strings and converts them to integers, catching invalid
        //  integers. Continues until 10 valid strings are read.
        //---------------------------------------------------------------
        public static void main (String[] args)
        {
                final int MAX = 10;
                String input = "";
                int count = 1, num;
                double sum = 0;
                Scanner scan = new Scanner (System.in);
                do
                {
                        System.out.print ("Enter integer " + count + ": ");

                        input = scan.nextLine();

                        num = Integer.parseInt(input);


                        sum = sum + num;


                        count++;


                        System.out.println("INVALID INTEGER. Please reenter.");

                }while (count <= MAX);

                System.out.println("Average: " + sum/MAX);
        }
}
```

Answer :

```java
//*********************************************************************
//  ReadIntegerStrings.java       Java Foundations
//
//  Solution to Programming Project 10.1
//*********************************************************************

import java.util.Scanner;

public class ReadIntegerStrings
{
    //-------------------------------------------------------------------
    //  Reads strings and converts them to integers, catching invalid
    //  integers. Continues until 10 valid strings are read.
    //-------------------------------------------------------------------
    public static void main (String[] args)
    {
        final int MAX = 10;

        String input = "";
        int count = 1, num;
        double sum = 0;

        Scanner scan = new Scanner (System.in);

        do
        {
            System.out.print ("Enter integer " + count + ": ");
            input = scan.nextLine();

            try
            {
                num = Integer.parseInt(input);

                sum = sum + num;
                count++;
            }
            catch (NumberFormatException e)
            {
                System.out.println("INVALID INTEGER. Please
reenter.");
            }
        }
        while (count <= MAX);


        System.out.println("Average: " + sum/MAX);
    }
}
```

2) What do you think the following code does?
Write down the

```java
import java.util.Scanner;
import java.io.*;

public class UserStringWriter
{
    public static void main (String[] args) throws IOException
    {
        Scanner scan = new Scanner(System.in);
        String fileName = "userStrings.txt";
        PrintWriter outFile = new PrintWriter(fileName);

        String input = "";

        do
        {
            System.out.print ("Enter a string: ");
            input = scan.nextLine();
            if (!input.equals("DONE"))
                    outFile.println(input);
        }
        while (!input.equals("DONE"));

        outFile.close();
        System.out.println ("Output file has been created: " +
    fileName);
    }
}
```

3) Copy the code in question 2 and try it on Eclipse. Does the code run? How can you fix it.

 Answer:
```java
import java.util.Scanner;
import java.io.*;

public class Exception_Example1
{
    //----------------------------------------------------------------
    //  Reads strings from the user and writes them to an output file
    //  until the sentinel value "DONE" is entered.
    //----------------------------------------------------------------
    public static void main (String[] args) throws IOException
    {
        Scanner scan = new Scanner(System.in);

        String fileName = "userStrings.dat";

        PrintWriter outFile = new PrintWriter(fileName);

        String input = "";

        do
        {
            System.out.print ("Enter a string: ");
            input = scan.nextLine();
            if (!input.equals("DONE"))
                outFile.println(input);
        }
        while (!input.equals("DONE"));

        outFile.close();
        System.out.println ("Output file has been created: " + fileName);
```

```
        }
}
```