```java
//System_Y3849047 Class File for Assessment 2
//17/02/2020
import java.util.*;
public class System_Y3849047 {
	Scanner sc=new Scanner(System.in);
	
	private String make;
	private String model;
	private int speed;
	private int memorySize; //in MB
	private double hardDiskSize; //in GB
	private double purchaseCost;
	
	public void SystemY3849047(String make, String model, int processorSpeed) {
		//constructor initialises the make, model and processor speed of the 
system
		
		make = getMake();
		model = getModel();
		speed = getProcessorSpeed();
		
	}
	
	public void setMemory(int memorySizeIn) {
		//Set RAM Size.
		memorySize = memorySizeIn;
		System.out.println("RAM is " + memorySize + "MB");
	}
	
	public void setHardDisk(double hardDiskSizeIn) {
		//Set Hard Disk Size
		hardDiskSize = hardDiskSizeIn;
		System.out.println("Hard Disk is " + hardDiskSize + "GB");
	}
	
	public double setPurchaseCost(double purchaseCost) {
		//methods to set corresponding attributes
		purchaseCost = 200;
		return purchaseCost;
	}
	
	public String getMake() {
		//Set the make of the computer.
		make = "DELL";
		return make;
	}
	
	public String getModel() {
		//Set the model of the computer.
		model = "Inspiron 15-3000";
		return model;
	}
	
	public int getProcessorSpeed() {
		//methods to return attribute values
		speed = 20;
		return speed;
	}
```

```
        public void displayDetails() {
                //Displays all the details of the system to the terminal
                System.out.println("Make of System: " + getMake());
                System.out.println("Model of System: " + getModel());
                System.out.println("Processor Speed: " + getProcessorSpeed());
        }

        public String checkHDStatus() {
                //Method checks if hard disk is below 2GB, if so, return "low" 
otherwise "OK"
                String HDStatus = "Not Valid";
                if (hardDiskSize < 2.0 ) {
                        HDStatus = "low";
                }
                else if (hardDiskSize >= 2.0) {
                        HDStatus = "OK";
                }
                System.out.println(HDStatus);
                return HDStatus;
        }

        public boolean goodMemorySize() {
                //checks if RAM is below 128MB, if so then returns false, otherwise 
true.
                boolean goodMemory = false;
                if (memorySize >= 128.0){
                        goodMemory = true;
                }
                else if (memorySize < 128.0) {
                        goodMemory = false;
                }
                return goodMemory;
        }

        public void diagnoseSystem() {
                //This method checks both the checkHDStatus() and goodMemorySize() 
methods and displays them to the terminal.
                System.out.println("Hard disk size = " + checkHDStatus());
                System.out.println("Memory size OK = " + goodMemorySize());
        }

        public void displaySystemProperties() {
                //Output the local System Properties into the console.
                String osArch; String osName; String osSystemVersion; String 
userAccountName; String javaVersion;

                osArch = System.getProperty("os.arch");
                System.out.println("Operating System Architecture: " + osArch);

                osName = System.getProperty("os.name");
                if(osName.equals("Windows 10") == true) {
                        System.out.println("Operating System Name: " + osName + ", 
This is a good thing!");
                }
                else if(osName.equals("Linux") == true) {
                        System.out.println("Operating System Name: " + osName + ", 
This is a bad thing!");
                }
                else {
```

```
            System.out.println("Operating System Name: " + osName + ",
This is neither good nor bad!");
        }

        osSystemVersion = System.getProperty("os.version");
        System.out.println("Operating System Version: " + osSystemVersion);
        userAccountName = System.getProperty("user.name");
        System.out.println("User Account Name: " + userAccountName);
        javaVersion = System.getProperty("java.version");
        System.out.println("Version of Java: " + javaVersion);
    }

}
```

```
//SystemTest_Y3849037 for Assessment 2
//17/02/2020
import java.util.*;
public class SystemTest_Y3849047 {

    public static void main(String[] args) {
        int iChoice;
        int memorySize;
        double hardDiskSize;
        Scanner sc=new Scanner(System.in);

        System_Y3849047 g=new System_Y3849047();
        // test all methods here:

        g.getMake();
        g.getModel();
        g.getProcessorSpeed();
        g.displayDetails();
        g.checkHDStatus();
        g.goodMemorySize();
        g.diagnoseSystem();
        g.displaySystemProperties();

        // start do loop for options to display.
        do
        {
        System.out.println(
                "\nChoice 1: Print System Details\n" +
                "Choice 2: Diagnose System\n" +
                "Choice 3: Set Details\n" +
                "Choice 4: Quit the program\n");
        System.out.println("Please enter your answer below:");
        iChoice = sc.nextInt();
        if (iChoice==1) {
            g.displayDetails();
        }
        else if (iChoice==2){
            g.diagnoseSystem();
        }
        else if (iChoice==3){
            System.out.println("Please tell the system the size of the RAM
(MB)");
            memorySize = sc.nextInt();
            g.setMemory(memorySize);
            System.out.println("Please tell the system the size of the 
Hard Disk (GB)");
            hardDiskSize = sc.nextDouble();
            g.setHardDisk(hardDiskSize);
        }
        } while (iChoice<4); // exits the program when imput < 4.

    }

}
```

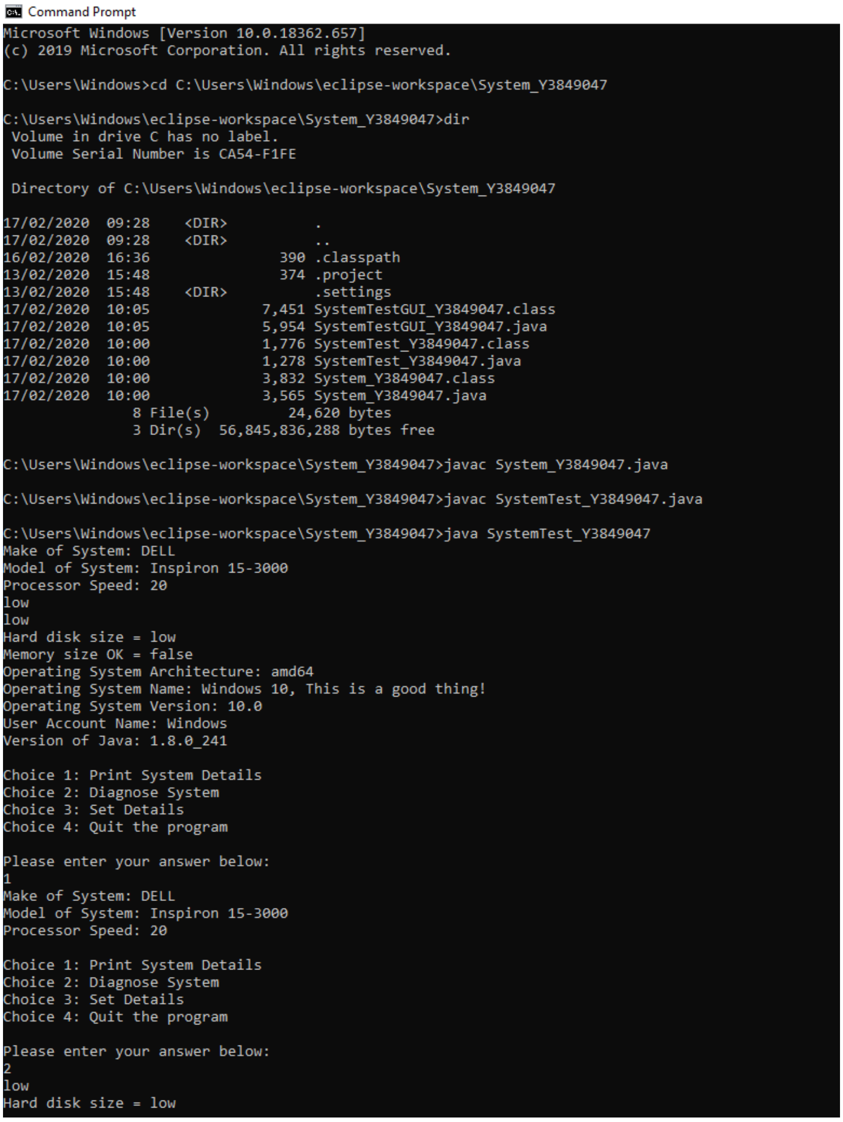
```
//SystemTestGUI_Y3849047 for Assessment 2
//17/02/2020
import javafx.application.Application;
import javafx.scene.control.Button;
import javafx.stage.Stage;
import javafx.scene.*;
import javafx.scene.layout.*;
import javafx.scene.control.*;
import javafx.geometry.*;

public class SystemTestGUI_Y3849047 extends Application {

    //set Stage and Scenes.
    Stage window;
    Scene scene, printSystemDetailsScene, diagnoseSystemScene, setDetailsScene;

    public static void main(String[] args) {
        launch(args);
    }

    @Override
    public void start(Stage primaryStage) throws Exception {

        //Call System_Y3849047 Class
        System_Y3849047 g=new System_Y3849047();

        //Primary Scene.
        window = primaryStage;
        window.setTitle("System_Y3849047 GUI");

        GridPane grid = new GridPane();
        grid.setPadding(new Insets(10, 10, 10, 10));
        grid.setVgap(8);
        grid.setHgap(10);

        //Start of Content, label giving purpose of page.
        Label label = new Label();
        label.setText("Please pick an operation:");
        GridPane.setConstraints(label, 0, 0);

        //Button to print the system details, both to the GUI and to the 
console.
```

```
            Button prtSysDetailsBtn = new Button("Print System Details");
            //Action calls the Print System Details Scene.
            prtSysDetailsBtn.setOnAction(e ->
window.setScene(printSystemDetailsScene)); //MIGHT WANT TO ADD THE DETAILS TO THE
CONSOLE
            GridPane.setConstraints(prtSysDetailsBtn, 0, 1);

            //Button to present the System Diagnosis.
            Button diagnoseSysBtn = new Button("Diagnose System");
            //enter scene change call here
            diagnoseSysBtn.setOnAction(e ->
window.setScene(diagnoseSystemScene)); //MIGHT WANT TO ADD THE DETAILS TO THE
CONSOLE
            GridPane.setConstraints(diagnoseSysBtn, 0, 2);

            //Button to set the details of the RAM and Hard Disk Space.
            Button setDetailsBtn = new Button("Set Details");
            //enter scene change call here
            setDetailsBtn.setOnAction(e -> window.setScene(setDetailsScene));
            GridPane.setConstraints(setDetailsBtn, 0, 3);

            //creating a button to quit the program.
            Button quitBtn = new Button("Quit the program");
            quitBtn.setOnAction( e -> closeProgram());
            GridPane.setConstraints(quitBtn, 0, 4);

            //Add all the children to the Grid format.
            grid.getChildren().addAll(label, prtSysDetailsBtn, diagnoseSysBtn,
setDetailsBtn, quitBtn);

            //Initiate the Scene.
            Scene scene = new Scene(grid, 500, 500);
            window.setScene(scene);
            window.show();



            //Contents for Print System Details scene.
            Label label1 = new Label("Make of Computer: " + g.getMake() );
            Label label2 = new Label( "Computer Model: " + g.getModel() );
            Label label3 = new Label();
            label3.setText("Processor Speed: " + g.getProcessorSpeed());
            Button backToPrimarySceneButton = new Button("Back");
            backToPrimarySceneButton.setOnAction(e -> window.setScene(scene));

            //Layout for Print System Details scene.
            VBox printSystemDetailsLayout = new VBox();
            printSystemDetailsLayout.setPadding(new Insets(20));
            printSystemDetailsLayout.getChildren().addAll(label1, label2,
label3, backToPrimarySceneButton);
            printSystemDetailsScene = new Scene(printSystemDetailsLayout, 500,
500);



            //Contents for Diagnose System scene.
            Label label4 = new Label ("Hard disk size = " + g.checkHDStatus());
            Label label5 = new Label ("Memory size OK = " + g.goodMemorySize());
            Button backToPrimarySceneButton2 = new Button("Back");
```

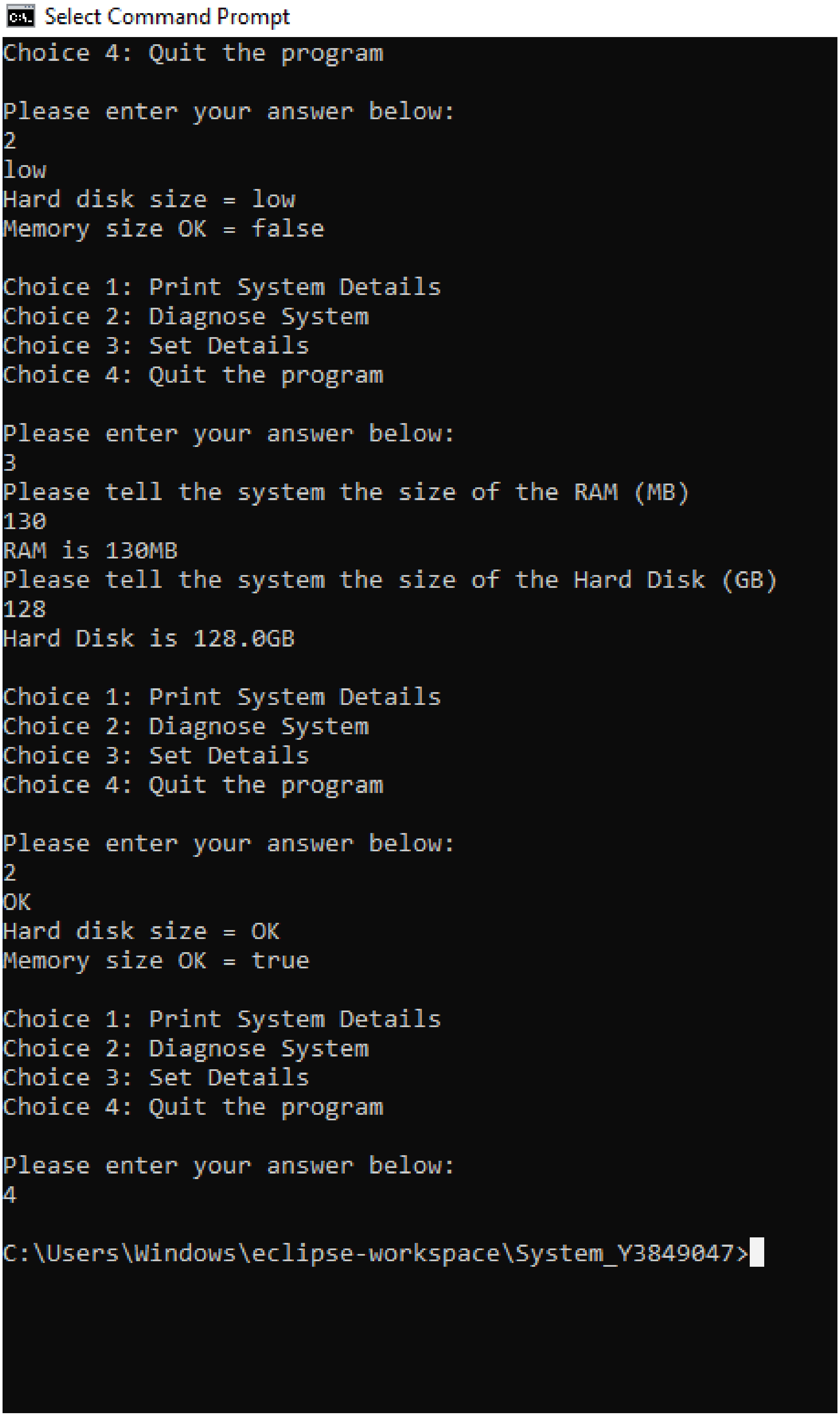
```
             backToPrimarySceneButton2.setOnAction(e -> window.setScene(scene));

             //Layout for Diagnose System scene.
             VBox diagnoseSystemLayout = new VBox();
             diagnoseSystemLayout.setPadding(new Insets(20));
             diagnoseSystemLayout.getChildren().addAll(label4, label5,
backToPrimarySceneButton2);
             diagnoseSystemScene = new Scene(diagnoseSystemLayout, 500, 500);



             //Contents for Set Details scene.
             Label label6 = new Label ("Set the computers Memory Size (MB) in the
box below:");
             TextField memoryImput = new TextField("Memory of Computer");
             Label label7 = new Label ("Set the computers Hard Disk Size (GB) in
the box below");
             TextField hardDiskImput = new TextField("Size of Hard Disk");

             Button submit = new Button ("Submit");
             submit.setOnAction(e -> {
                    isInt(memoryImput, memoryImput.getText());
                    isDouble(hardDiskImput, hardDiskImput.getText());
                    window.setScene(scene);
             });

             //Layout for Set Details scene.
             VBox setDetailsLayout = new VBox();
             setDetailsLayout.setPadding(new Insets(20));
             setDetailsLayout.getChildren().addAll(label6, memoryImput, label7,
hardDiskImput, submit);
             setDetailsScene = new Scene(setDetailsLayout, 500, 500);
             }

       //Validate Memory Size data for Set Details.
       private boolean isInt(TextField input, String message){
        try{
             System_Y3849047 g=new System_Y3849047();
             int memorySize = Integer.parseInt(input.getText());
             System.out.println("Memory of computer: " + memorySize);
             g.setMemory(memorySize);
            g.diagnoseSystem();
            return true;
        }catch(NumberFormatException e){
            System.out.println("Error: " + message + " is not a number");
            return false;
            }
        }

       //Validate Hard Disk data for Set Details.
       private boolean isDouble(TextField input, String message){
        try{
             System_Y3849047 g=new System_Y3849047();
            double hardDiskSize = Double.parseDouble(input.getText());
            g.setHardDisk(hardDiskSize);
            System.out.println("Hard Disk Size: " + hardDiskSize);
            g.diagnoseSystem();
            return true;
        }catch(NumberFormatException e){
            System.out.println("Error: " + message + " is not a number");
            return false;
            }
        }

      //Code to be run when closing the Program.
      private void closeProgram() {
             window.close();
      }
}
```

Testing & Screendumps

Testing first test file (none GUI)

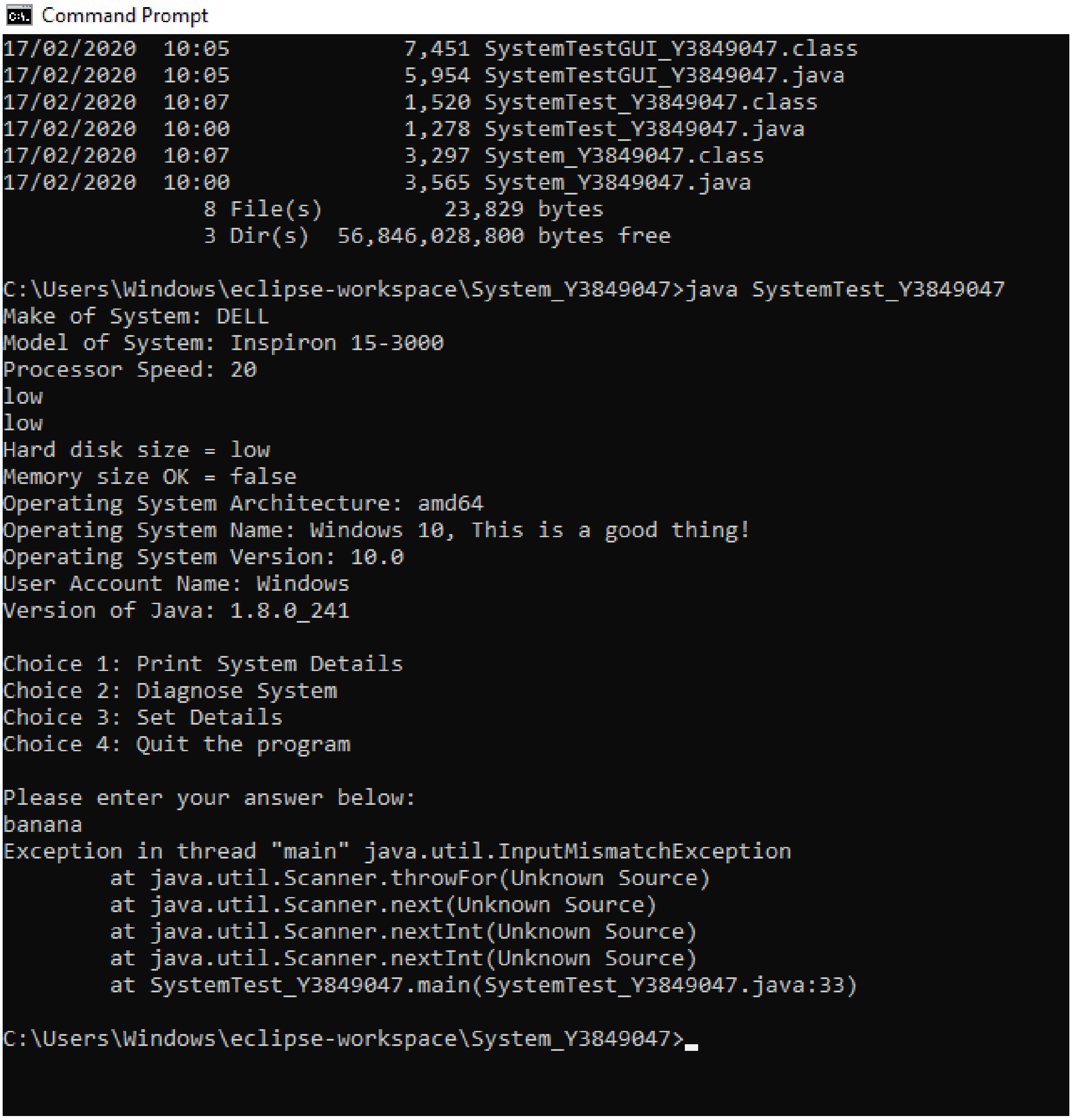


```
Microsoft Windows [Version 10.0.18362.657]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Windows>cd C:\Users\Windows\eclipse-workspace\System_Y3849047

C:\Users\Windows\eclipse-workspace\System_Y3849047>dir
 Volume in drive C has no label.
 Volume Serial Number is CA54-F1FE

 Directory of C:\Users\Windows\eclipse-workspace\System_Y3849047

17/02/2020  09:28    <DIR>          .
17/02/2020  09:28    <DIR>          ..
16/02/2020  16:36               390 .classpath
13/02/2020  15:48               374 .project
13/02/2020  15:48    <DIR>          .settings
17/02/2020  10:05             7,451 SystemTestGUI_Y3849047.class
17/02/2020  10:05             5,954 SystemTestGUI_Y3849047.java
17/02/2020  10:00             1,776 SystemTest_Y3849047.class
17/02/2020  10:00             1,278 SystemTest_Y3849047.java
17/02/2020  10:00             3,832 System_Y3849047.class
17/02/2020  10:00             3,565 System_Y3849047.java
               8 File(s)         24,620 bytes
               3 Dir(s)  56,845,836,288 bytes free

C:\Users\Windows\eclipse-workspace\System_Y3849047>javac System_Y3849047.java

C:\Users\Windows\eclipse-workspace\System_Y3849047>javac SystemTest_Y3849047.java

C:\Users\Windows\eclipse-workspace\System_Y3849047>java SystemTest_Y3849047
Make of System: DELL
Model of System: Inspiron 15-3000
Processor Speed: 20
low
low
Hard disk size = low
Memory size OK = false
Operating System Architecture: amd64
Operating System Name: Windows 10, This is a good thing!
Operating System Version: 10.0
User Account Name: Windows
Version of Java: 1.8.0_241

Choice 1: Print System Details
Choice 2: Diagnose System
Choice 3: Set Details
Choice 4: Quit the program

Please enter your answer below:
1
Make of System: DELL
Model of System: Inspiron 15-3000
Processor Speed: 20

Choice 1: Print System Details
Choice 2: Diagnose System
Choice 3: Set Details
Choice 4: Quit the program

Please enter your answer below:
2
low
Hard disk size = low
```



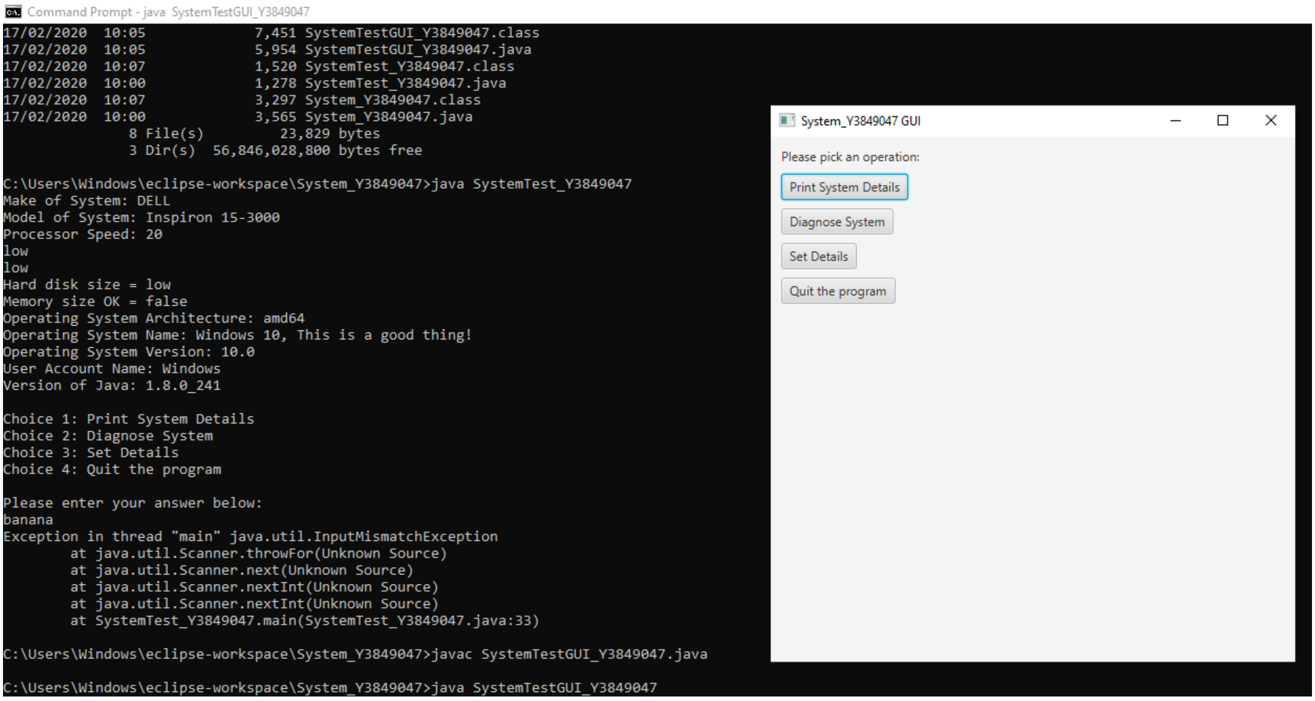
```
Choice 4: Quit the program

Please enter your answer below:
2
low
Hard disk size = low
Memory size OK = false

Choice 1: Print System Details
Choice 2: Diagnose System
Choice 3: Set Details
Choice 4: Quit the program

Please enter your answer below:
3
Please tell the system the size of the RAM (MB)
130
RAM is 130MB
Please tell the system the size of the Hard Disk (GB)
128
Hard Disk is 128.0GB

Choice 1: Print System Details
Choice 2: Diagnose System
Choice 3: Set Details
Choice 4: Quit the program

Please enter your answer below:
2
OK
Hard disk size = OK
Memory size OK = true

Choice 1: Print System Details
Choice 2: Diagnose System
Choice 3: Set Details
Choice 4: Quit the program

Please enter your answer below:
4

C:\Users\Windows\eclipse-workspace\System_Y3849047>
```

Error when you enter an invalid input (String not int)



```
17/02/2020  10:05             7,451 SystemTestGUI_Y3849047.class
17/02/2020  10:05             5,954 SystemTestGUI_Y3849047.java
17/02/2020  10:07             1,520 SystemTest_Y3849047.class
17/02/2020  10:00             1,278 SystemTest_Y3849047.java
17/02/2020  10:07             3,297 System_Y3849047.class
17/02/2020  10:00             3,565 System_Y3849047.java
               8 File(s)         23,829 bytes
               3 Dir(s)  56,846,028,800 bytes free

C:\Users\Windows\eclipse-workspace\System_Y3849047>java SystemTest_Y3849047
Make of System: DELL
Model of System: Inspiron 15-3000
Processor Speed: 20
low
low
Hard disk size = low
Memory size OK = false
Operating System Architecture: amd64
Operating System Name: Windows 10, This is a good thing!
Operating System Version: 10.0
User Account Name: Windows
Version of Java: 1.8.0_241

Choice 1: Print System Details
Choice 2: Diagnose System
Choice 3: Set Details
Choice 4: Quit the program

Please enter your answer below:
banana
Exception in thread "main" java.util.InputMismatchException
        at java.util.Scanner.throwFor(Unknown Source)
        at java.util.Scanner.next(Unknown Source)
        at java.util.Scanner.nextInt(Unknown Source)
        at java.util.Scanner.nextInt(Unknown Source)
        at SystemTest_Y3849047.main(SystemTest_Y3849047.java:33)

C:\Users\Windows\eclipse-workspace\System_Y3849047>
```

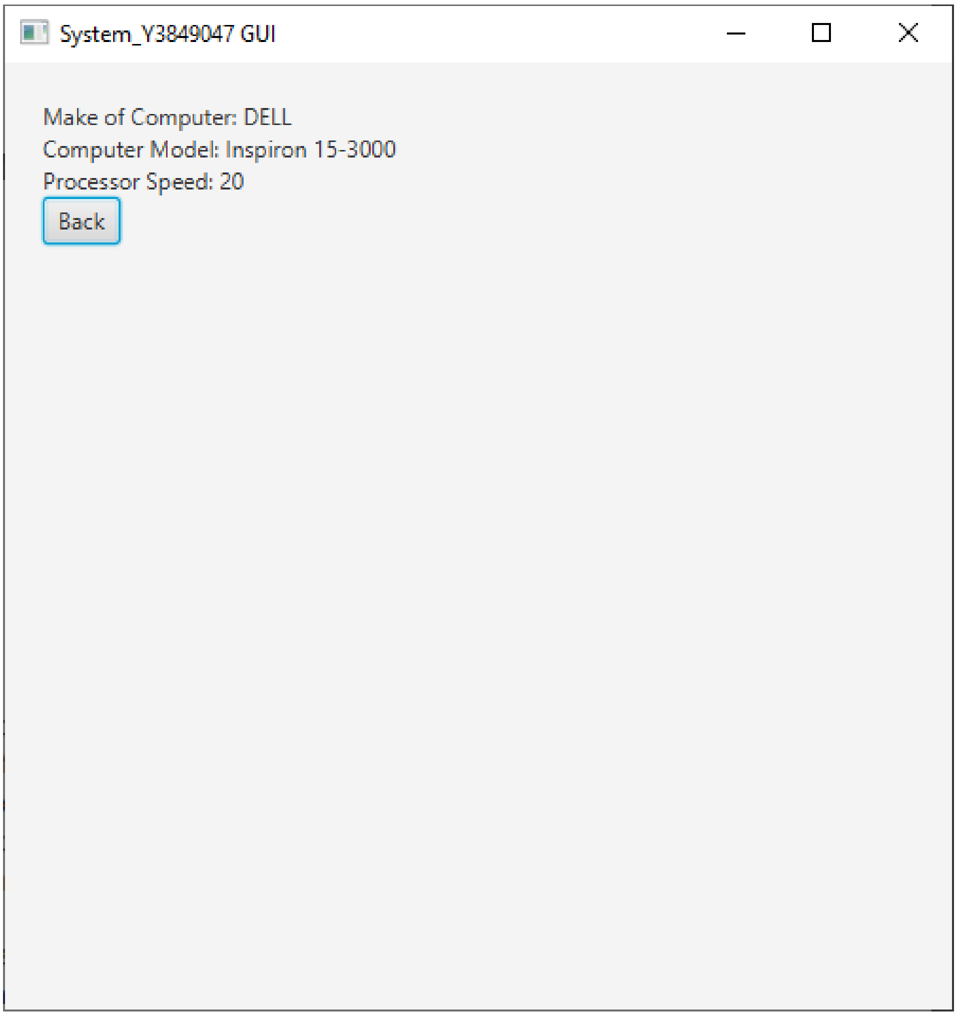
Testing GUI



Command Prompt - java SystemTestGUI_Y3849047

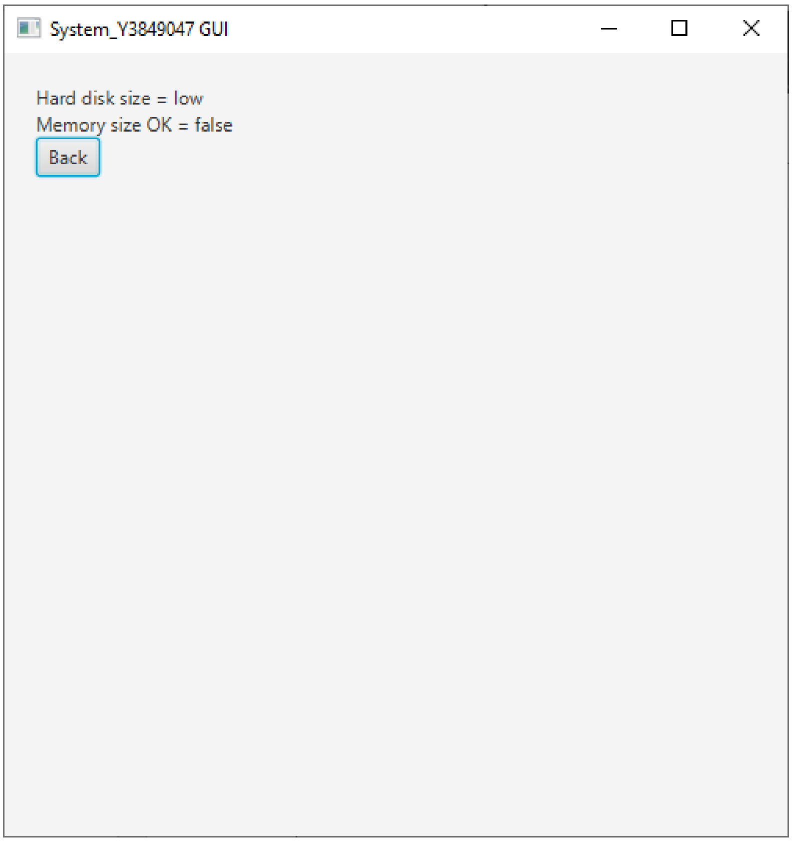
```
17/02/2020  10:05             7,451 SystemTestGUI_Y3849047.class
17/02/2020  10:05             5,954 SystemTestGUI_Y3849047.java
17/02/2020  10:07             1,520 SystemTest_Y3849047.class
17/02/2020  10:00             1,278 SystemTest_Y3849047.java
17/02/2020  10:07             3,297 System_Y3849047.class
17/02/2020  10:00             3,565 System_Y3849047.java
               8 File(s)         23,829 bytes
               3 Dir(s)  56,846,028,800 bytes free

C:\Users\Windows\eclipse-workspace\System_Y3849047>java SystemTest_Y3849047
Make of System: DELL
Model of System: Inspiron 15-3000
Processor Speed: 20
low
low
Hard disk size = low
Memory size OK = false
Operating System Architecture: amd64
Operating System Name: Windows 10, This is a good thing!
Operating System Version: 10.0
User Account Name: Windows
Version of Java: 1.8.0_241

Choice 1: Print System Details
Choice 2: Diagnose System
Choice 3: Set Details
Choice 4: Quit the program

Please enter your answer below:
banana
Exception in thread "main" java.util.InputMismatchException
        at java.util.Scanner.throwFor(Unknown Source)
        at java.util.Scanner.next(Unknown Source)
        at java.util.Scanner.nextInt(Unknown Source)
        at java.util.Scanner.nextInt(Unknown Source)
        at SystemTest_Y3849047.main(SystemTest_Y3849047.java:33)

C:\Users\Windows\eclipse-workspace\System_Y3849047>javac SystemTestGUI_Y3849047.java

C:\Users\Windows\eclipse-workspace\System_Y3849047>java SystemTestGUI_Y3849047
```

Print System Details Button



Make of Computer: DELL
Computer Model: Inspiron 15-3000
Processor Speed: 20

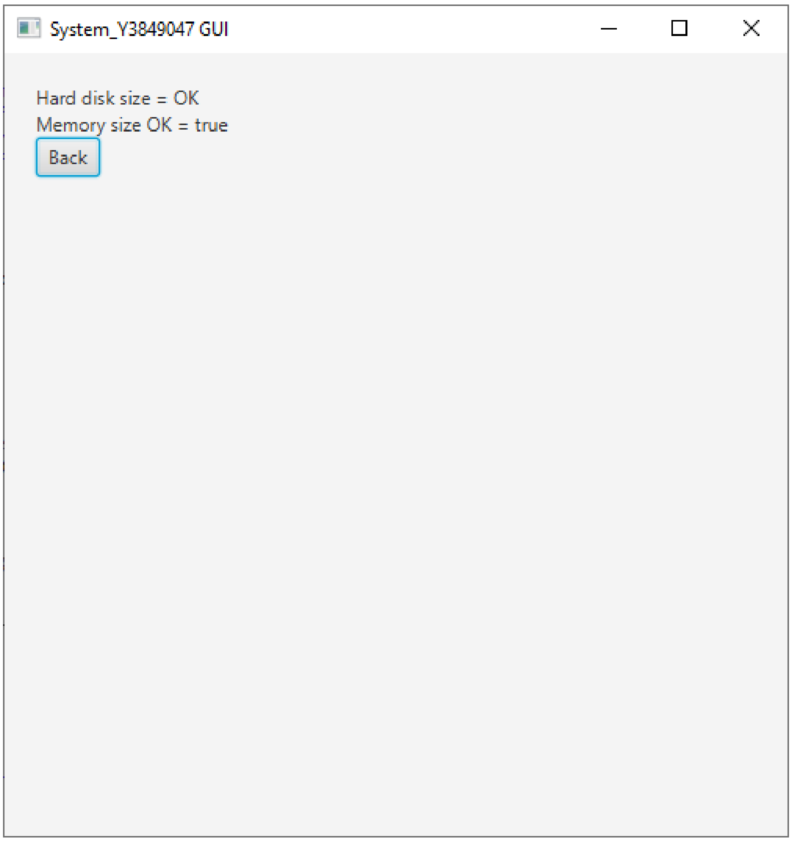
Diagnose System Button (not initialised)



Hard disk size = low

Memory size OK = false

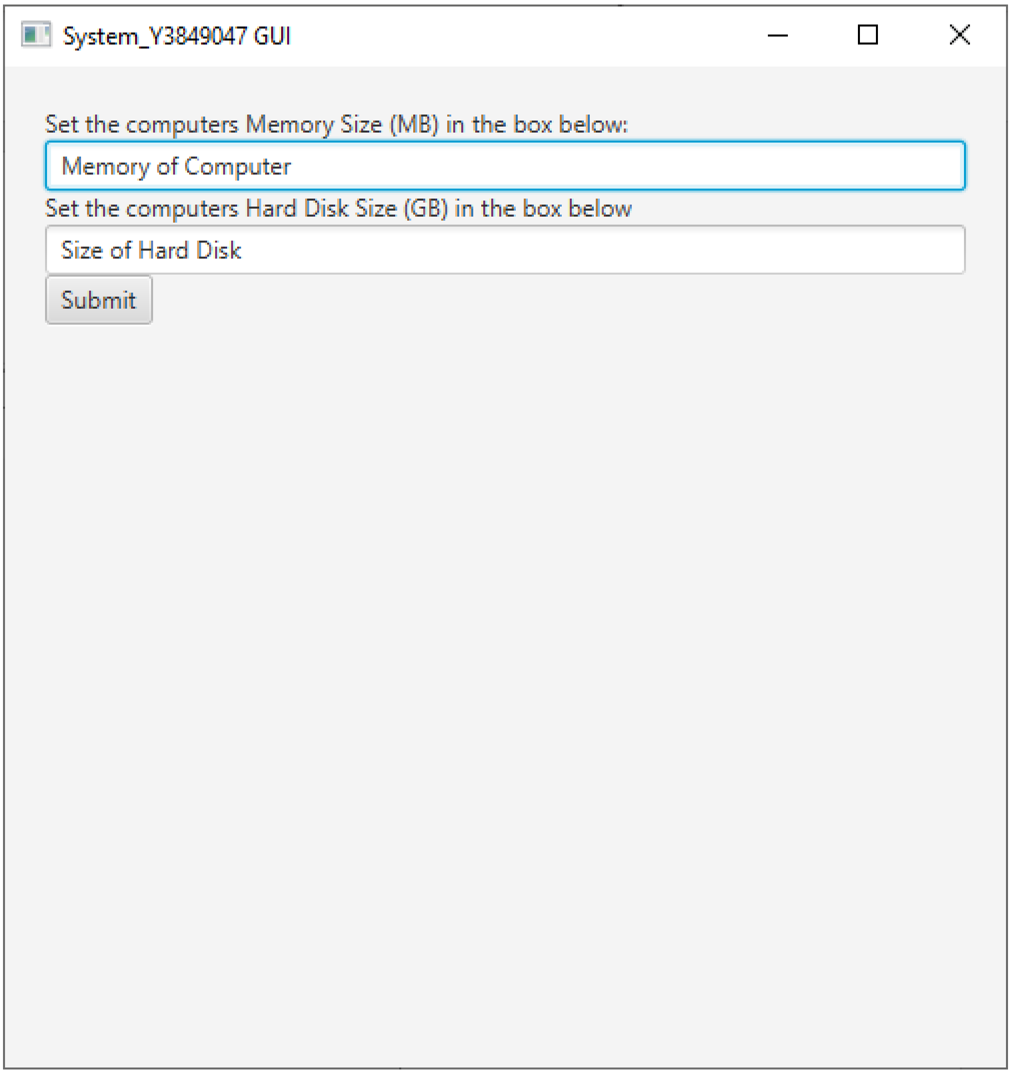
Diagnose System Button (initialised)



Hard disk size = OK

Memory size OK = true

Set Details Button Screen



System_Y3849047 GUI

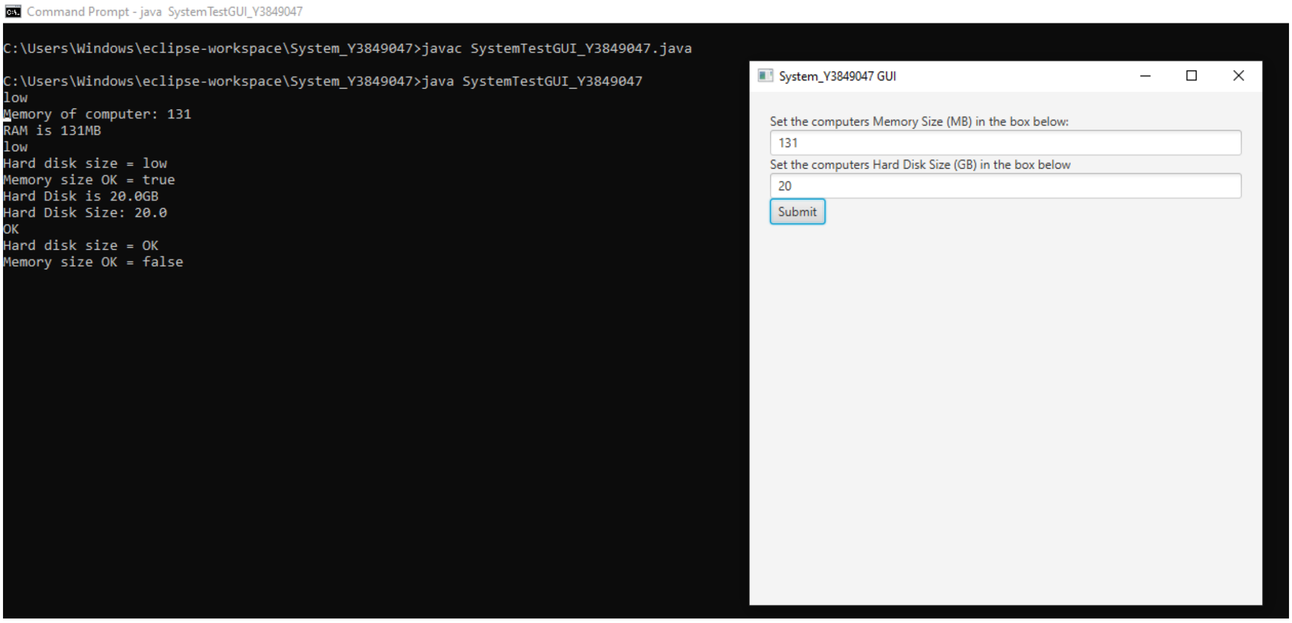
Set the computers Memory Size (MB) in the box below:

Memory of Computer

Set the computers Hard Disk Size (GB) in the box below

Size of Hard Disk

Numbers in the TextField and output in console after Submit has been entered



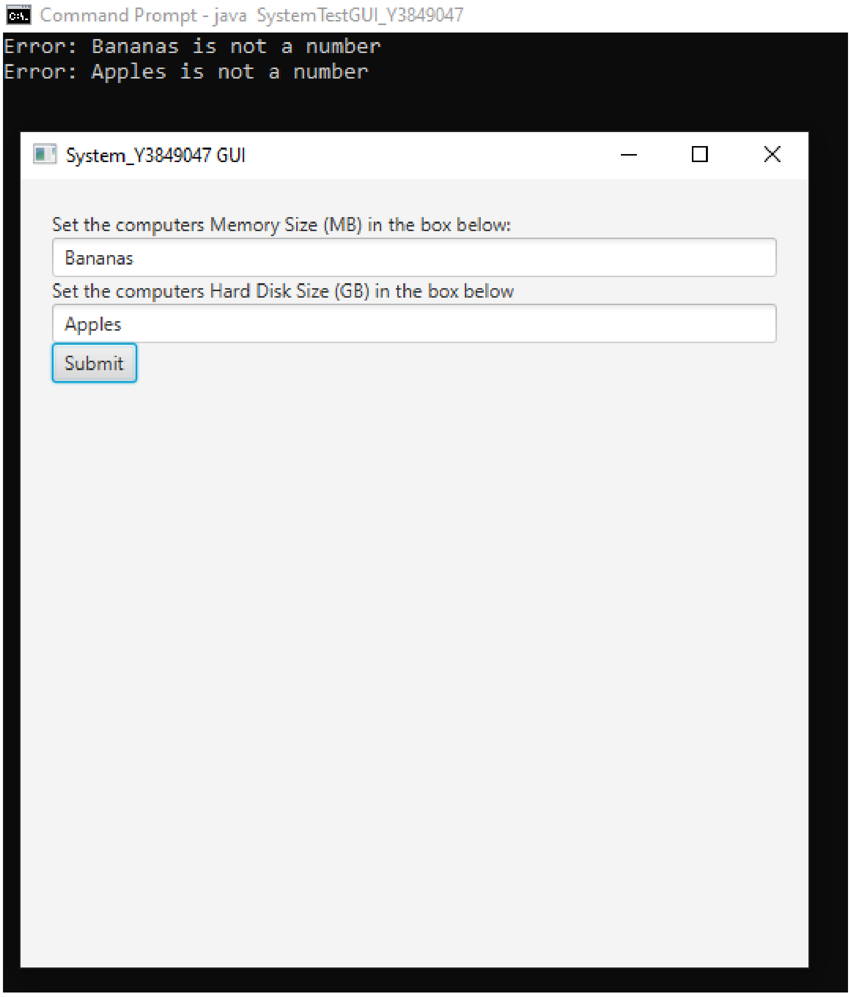
Command Prompt - java SystemTestGUI_Y3849047

```
C:\Users\Windows\eclipse-workspace\System_Y3849047>javac SystemTestGUI_Y3849047.java

C:\Users\Windows\eclipse-workspace\System_Y3849047>java SystemTestGUI_Y3849047
low
Memory of computer: 131
RAM is 131MB
low
Hard disk size = low
Memory size OK = true
Hard Disk is 20.0GB
Hard Disk Size: 20.0
OK
Hard disk size = OK
Memory size OK = false
```

System_Y3849047 GUI

Set the computers Memory Size (MB) in the box below:
131
Set the computers Hard Disk Size (GB) in the box below
20

String in TextField and output in console after Submit has been entered



Command Prompt - java SystemTestGUI_Y3849047

```
Error: Bananas is not a number
Error: Apples is not a number
```

System_Y3849047 GUI

Set the computers Memory Size (MB) in the box below:
Bananas
Set the computers Hard Disk Size (GB) in the box below
Apples