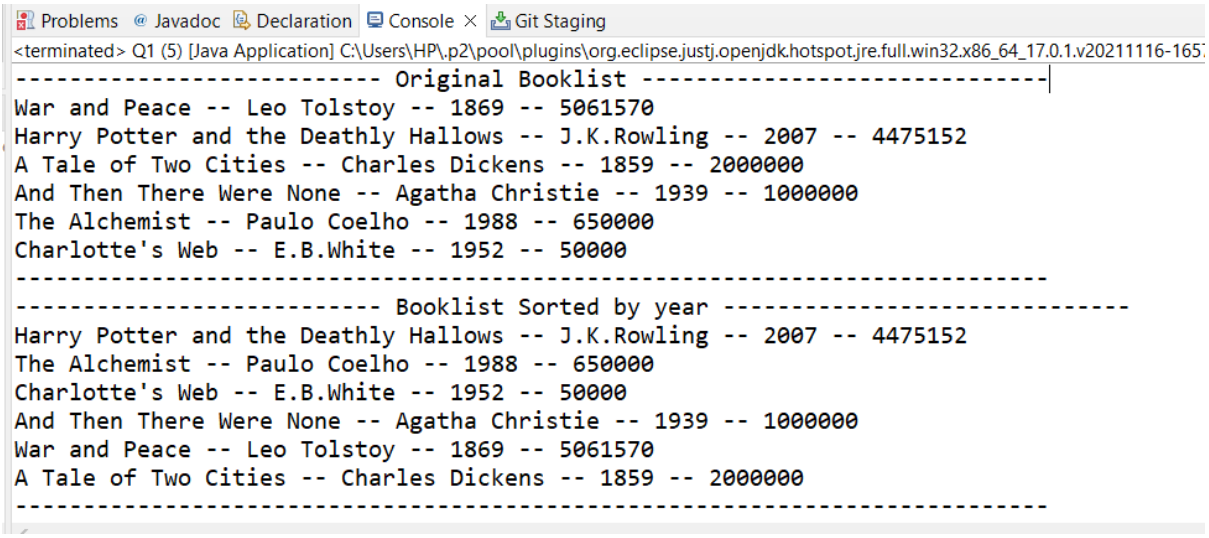
1.Create an arraylist of user-defined data type Book. it should have:-
i)Name of the Book
ii)Author of the book
iii)year of publication of the book
iV)number of copies sold.
sort the array list based on the year of publication.

CODE:

```
package sba2;

import java.util.ArrayList;

class Book implements Comparable {
    String Name;
    String Author;
    Integer Year;
    int Copies;

    Book(String name, String author, int year, int copies) {
        this.Name = name;
        this.Author = author;
        this.Year = year;
        this.Copies = copies;
    }

    public int getYear() {
        return this.Year;
    }

    @Override
    public int compareTo(Object o) {
        Book b1 = (Book) o;
        return (this.Year.compareTo(b1.getYear()));
    }
}

public class Q1 {
    public static void main(String[] args) {
        ArrayList<Book> BookList = new ArrayList<Book>();
        Book b1 = new Book("War and Peace", "Leo Tolstoy", 1869,
5061570);
        Book b2 = new Book("Harry Potter and the Deathly Hallows",
"J.K.Rowling", 2007, 4475152);
        Book b3 = new Book("A Tale of Two Cities", "Charles
Dickens", 1859, 2000000);
        Book b4 = new Book("And Then There Were None", "Agatha
Christie", 1939, 1000000);
```

```
        Book b5 = new Book("The Alchemist", "Paulo Coelho", 1988,
650000);
        Book b6 = new Book("Charlotte's Web", "E.B.White", 1952,
50000);

        BookList.add(b1);
        BookList.add(b2);
        BookList.add(b3);
        BookList.add(b4);
        BookList.add(b5);
        BookList.add(b6);

        System.out.println("--------------------------- Original
Booklist -----------------------------");
        for (Book b : BookList) {
            System.out.println(b.Name + " -- " + b.Author + " -- " +
b.Year + " -- " + b.Copies);
        }
        System.out.println("----------------------------------------
-----------------------------------");

        Collections.sort(BookList, Collections.reverseOrder()); //
Sorted based on year (latest to oldest)

        System.out.println("--------------------------- Booklist
Sorted by year -----------------------------");
        for (Book b : BookList) {
            System.out.println(b.Name + " -- " + b.Author + " -- " +
b.Year + " -- " + b.Copies);
        }
        System.out.println("----------------------------------------
-----------------------------------");
    }
}
```

OUTPUT:



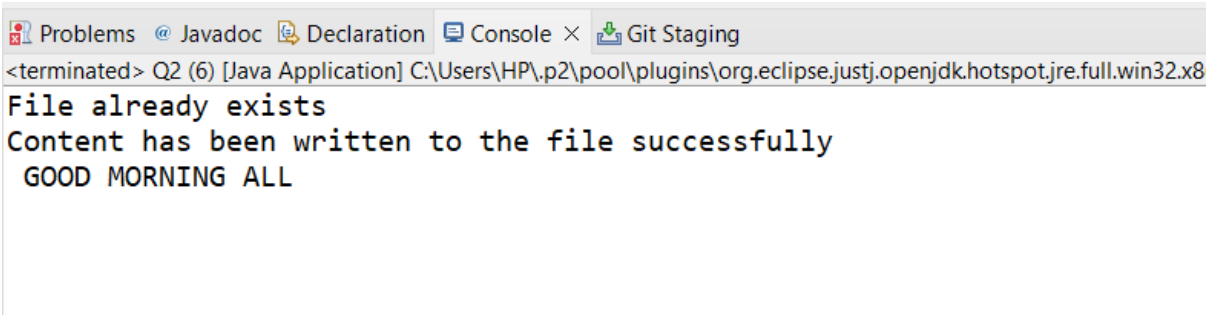
2.Write a program to create, write and read from a file.

CODE:

```
package sba2;

import java.io.File;

public class Q2 {
	public static void main(String[] args) {
		try
		{
			File f1=new File("E:example2.txt");
			if(f1.createNewFile())
			{
				System.out.println("a new file named
"+f1.getName()+" has been created");
			}
			else
			{
				System.out.println("File already exists");
			}

		}
		catch(IOException e)
		{
			System.out.println("an unexpected error has
occured");
			System.out.println(e);
		}
//Writing into file
```

```
            try
            {
      FileWriter obj1=new FileWriter("E:example2.txt");
      obj1.write(" GOOD MORNING ALL");
      obj1.close();
      System.out.println("Content has been written to the file
successfully");
            }
            catch(IOException e)
            {
      System.out.println("Some unexpected error has occured");
      System.out.println(e);
            }
//reading data
            try
            {
      File f1=new File("E:example2.txt");
      Scanner sc=new Scanner(f1);
      while(sc.hasNextLine())
      {
            String fileData=sc.nextLine();
            System.out.println(fileData);
      }
      sc.close();
            }
            catch(Exception e)
            {

      System.out.println(e);
            }
}}
```

OUTPUT:

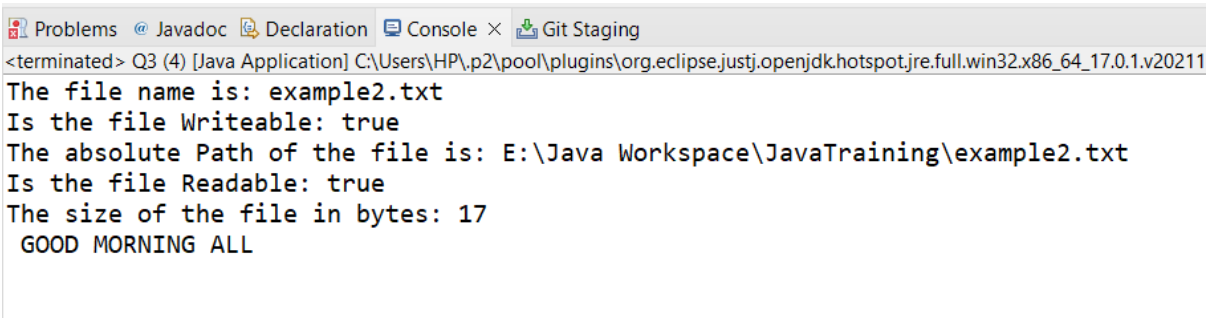


3.Write a program to get the information about the file.

CODE:

```
package sba2;

import java.io.File;
public class Q3 {
	public static void main(String[] args) throws
FileNotFoundException {
		File f1=new File("E:example2.txt");

		if(f1.exists())
{
			System.out.println("The file name is:
"+f1.getName());
			System.out.println("Is the file Writeable:
"+f1.canWrite());
			System.out.println("The absolute Path of the file
is: "+f1.getAbsolutePath());
			System.out.println("Is the file Readable:
"+f1.canRead());
			System.out.println("The size of the file in bytes:
"+f1.length());
			//reading data
			Scanner sc=new Scanner(f1);
			while(sc.hasNextLine())
			{
				String fileData=sc.nextLine();
				System.out.println(fileData);
			}
			sc.close();
		}
		else
		{
			System.out.println("the file does not exist");
		}
	}

}
```

OUTPUT:

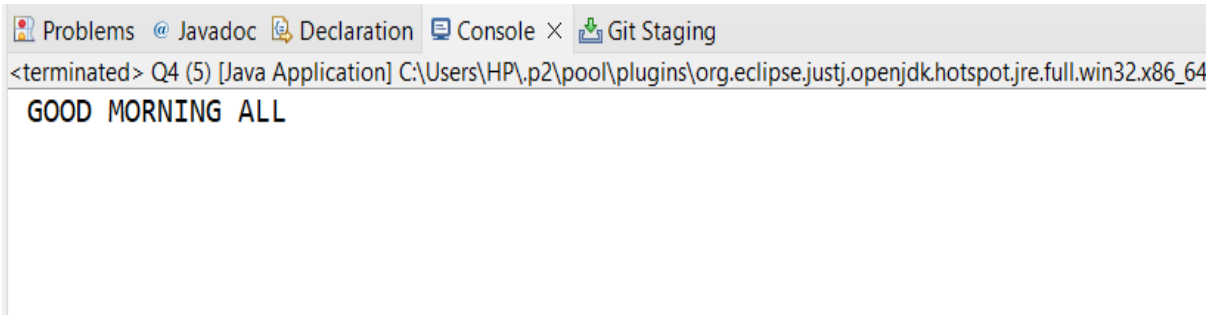


4.Write a program Implement the filereader until the file ending character is "-1" and print all the data of the file.

CODE:

```
package sba2;

import java.io.FileReader;

import java.io.IOException;

public class Q4 {
	public static void main(String[] args) {
		try

{
int i;
FileReader fr= new FileReader("E:example2.txt");
	while((i=fr.read())!=-1)
	{
	System.out.print((char)i);
	}
	fr.close();
		}		catch(IOException e)
		{
			System.out.println(e);
		}

	}

}
}
```

OUTPUT:


Problems
Javadoc
Declaration
Console
Git Staging
<terminated> Q4 (5) [Java Application] C:\Users\HP\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64
GOOD MORNING ALL