1. **Write a program to calculate the Simple Interest with minimal code using features of Java 11.**

**HINT: Use the concepts of functional interface and Local variable syntax for lambda parameters.**

import java.util.Scanner;

@FunctionalInterface

interface interest{

int formula(int a,int b, int c);

}

public class SI {

public static void main(String[] args) {

// TODO Auto-generated method stub

int p,r,t;

Scanner sc = new Scanner(System.*in*);

System.*out*.println("Enter the principal: ");

p = sc.nextInt();

System.*out*.println("Enter the rate: ");

r = sc.nextInt();

System.*out*.println("Enter the time: ");

t = sc.nextInt();

interest si = (a, b, c) -> (a\*b\*c)/100;

int ans = si.formula(p,r,t);

System.*out*.println("Simple Interest: " +ans);

}

}

Output:

Enter the principal:

5000

Enter the rate:

4

Enter the time:

2

Simple Interest: 400

1. **Java 11 supports var keyword for variable declarations. List the scenarios where var**

**Keyword cannot be used for such variable declaration. Give reason in support of your answer for each scenario.**

* Scenario 1: var keyboard cannot be used as an instance and a global variable.

package Java11;

class Demo1

{

var x = 50;

public static void main(String[] args) {

// TODO Auto-generated method stub

System.*out*.println(x);

}

}

Output:

Cannot make a static reference to the non-static field x

* Scenario 2: var cannot be used as a generic type

package Java11;

import java.util.\*;

class demo2 {

public static void main(String[] args) {

// TODO Auto-generated method stub

var<var> v = new ArrayList<>();

// add elements

v.add(10);

v.add(20);

v.add(30);

// print the list

System.*out*.println(v);

}

}

Output:

Cannot prog.java:10:error: ‘var’ is not allowed here

var<var> v = new ArrayList<>();

1 error

* Scenario 3: var cannot be used without explicit initialization

package Java11;

import java.io.\*;

class demo3 {

public static void main(String[] args) {

// TODO Auto-generated method stub

// declaration without

// initialization

var variable;

// This is also not valid

var variable = null;

}

}

Output:

Cannot use 'var' on variable without initializer

Duplicate local variable variable

Cannot infer type for local variable initialized to 'null'

* Scenario 4: var cannot be used with lambda expression

package Java11;

interface myInt {

int add(int a, int b);

}

class demo4 {

public static void main(String[] args) {

// TODO Auto-generated method stub

var v = (a,b) -> (a + b);

System.*out*.println(v.add(2,3));

}

}

Output:

Lambda expression needs an explicit target-type

Cannot invoke add(int, int) on the primitive type null

1. **“A quick brown for jumps over the last dog”. Create an ArrayList from the given String. Such an ArrayList should include each word from the given sentence. Finally convert such List to an array using Java 11 methods and print the output.**

package java11;

import java.lang.reflect.Array;

import java.util.ArrayList;

import java.util.Arrays;

public class strings {

public static void main(String[] args) {

ArrayList<String> list=new ArrayList<>();

list.add("A quick");

list.add("brown");

list.add("fox jumps");

list.add("over the");

list.add("lazy dog");

//System.out.println(list);

String[] arr2=list.toArray(String[]::new);

System.out.println(Arrays.toString(arr2));

}

}

Output:

[A quick, brown, fox jumps, over the, lazy dog]

1. **Using features of java 11, read the data from text file (File name: StudentList.txt). Calculate the count of students and print the names as well as the total count of students on the screen.(If any line in the file doesn’t contain a name, for such a record blank space should not be printed in the output.)**

**HINT: Use java 11 features of files and String methods to reduce the lines of code to be written**

Package Java11;

import java.io.BufferedReader;

import java.io.File;

import java.io.FileInputStream;

import java.io.FileReader;

import java.io.IOException;

import java.nio.file.Files;

import java.nio.file.Path;

import java.util.Scanner;

public class file1 {

public static void main(String[] args)

{

var path="C:\\StudentList.txt";

try {

String data=Files.readString(Path.of(path));

System.out.println(data);

int count =0;

Scanner fileReader = new Scanner(new FileInputStream(path));

int wordCount = 0;

while(fileReader.hasNext()){

fileReader.next();

wordCount++;

}

fileReader.close();

System.out.println("Number of students in the file is: " + wordCount);

} catch (IOException e) {

// TODO Auto-generated catch block

e.printStackTrace();

}

}

}

Output:

John

Mathew

Sheeren

George

Peeter

Steven

Michel

Andrew

Number of students in the file is: 8

1. **Write a program with the menu to accept the price of certain items and display their total. When user selects Option 1: should accept the prices of different products and insert these prices into first file (each amount to be inserted in a newline in the file). Next total of these values should be saved in a new file. Option 2: should allow the user to view the total of these prices from the second file.**

**Select your option (1: Insert New Price, 2: View Purchase Total, 3: Exit)**

**>1**

**>Insert 1st price:**

**>100**

**>Price has been saved to the file**

**>Do you want to enter price for more items? (Yes/No)**

**>Yes**

**>Insert 2nd price:**

**>200**

**>Price has been saved to the file**

**>Do you want to enter price for more items? (Yes/No)**

**>No**

**> Select your option (1: Insert New Price, 2: View Purchase Total, 3: Exit)**

**>2**

**>Total Price of all items is: 300**

**> Select your option (1: Insert New Price, 2: View Purchase Total, 3: Exit)**

**>3**

**exit program.....**

**HINT: Use java 11 features of files and String methods to reduce the line of code.**

Package Java11;

import java.io.IOException;

import java.nio.file.Files;

import java.nio.file.Path;

import java.nio.file.StandardOpenOption;

import java.util.Scanner;

public class Writetofile {

public static void main(String[] args) {

// TODO Auto-generated method stub

var firstfile = "C:\\Users\\SAIHCHIL\\prices.txt";

var secondfile = "C:\\Users\\SAIHCHIL\\total.txt";

int val =1,pr,total=0;

String c="Yes";

try {

Scanner sc = new Scanner(System.in);

char ch;

do {

System.out.println("\n \*\*Menu\*\*");

System.out.println("a.Insert new price \nb.View purchase Total \nc.Exit ");

System.out.println("Enter your choice: ");

ch = sc.next().charAt(0);

switch (ch) {

case 'a': do {

if(c.equals("Yes")) {

System.out.println("\nInsert "+val+" item price");

pr=sc.nextInt();

total=total+pr;

Files.writeString(Path.of(firstfile), String.valueOf(pr),StandardOpenOption.APPEND);

System.out.println("---Price has been saved to the file---");

System.out.println("\*\*Do u want to enter price for more items?(Yes/No)\*\*");

c=sc.next();

val=val+1;

}else {

break;

}

}while(c!="Yes");

break;

case 'b':

Files.writeString(Path.of(secondfile), String.valueOf(total),StandardOpenOption.APPEND);

String totprice = Files.readString(Path.of(secondfile));

System.out.println(totprice);

break;

case 'c':

System.out.println("See you soon!!");

}

} while (ch != (int)'c');

}catch(IOException e) {

e.printStackTrace();

}

}

}

Output:

\*\*Menu\*\*

a.Insert new price

b.View purchase Total

c.Exit

Enter your choice:

a

Insert 1 item price

100

---Price has been saved to the file---

\*\*Do u want to enter price for more items?(Yes/No)\*\*

Yes

Insert 2 item price

200

---Price has been saved to the file---

\*\*Do u want to enter price for more items?(Yes/No)\*\*

No

\*\*Menu\*\*

a.Insert new price

b.View purchase Total

c.Exit

Enter your choice:

b

Total price of all items is :300

\*\*Menu\*\*

a.Insert new price

b.View purchase Total

c.Exit

Enter your choice:

c

See you soon!!

1. **Write a code using HttpClient API which sends a GET request to** [**https://httpbin.org/get**](https://httpbin.org/get)**, and print out the response header, status code and body for the given URL Sample output could be (Note: date and other attribute values may differ in your case.)**

package Java11;

import java.io.IOException;

import java.net.URI;

import java.net.http.HttpClient;

import java.net.http.HttpHeaders;

import java.net.http.HttpRequest;

import java.net.http.HttpResponse;

import java.time.Duration;

public class HttpClientSynchronous {

private static final HttpClient httpClient = HttpClient.newBuilder()

.version(HttpClient.Version.HTTP\_1\_1)

.connectTimeout(Duration.ofSeconds(10))

.build();

public static void main(String[] args) throws IOException, InterruptedException {

HttpRequest request = HttpRequest.newBuilder()

.GET()

.uri(URI.create("https://httpbin.org/get"))

.setHeader("User-Agent", "Java 11 HttpClient Bot") // add request header

.build();

HttpResponse<String> response = httpClient.send(request, HttpResponse.BodyHandlers.ofString());

// print response headers

HttpHeaders headers = response.headers();

headers.map().forEach((k, v) -> System.out.println(k + ":" + v));

// print status code

System.out.println(response.statusCode());

// print response body

System.out.println(response.body());

}

}

Output:

access-control-allow-credentials:[true]

access-control-allow-origin:[\*]

connection:[keep-alive]

content-length:[271]

content-type:[application/json]

date:[Thu, 20 Jan 2022 15:06:50 GMT]

server:[gunicorn/19.9.0]

200

{

"args": {},

"headers": {

"Content-Length": "0",

"Host": "httpbin.org",

"User-Agent": "Java 11 HttpClient Bot",

"X-Amzn-Trace-Id": "Root=1-61e97a8a-43f54c175b843c1654ca185e"

},

"origin": "150.129.88.3",

"url": "https://httpbin.org/get"

}