Week3 – Batch3

Monday, November 22, 2021 2:25 PM

Q1. Create Book class with field name, id, price with aconstructor and get methods for all fields. [hint: constructor will be Book(id, name, price), methods will be getID(), getName() and getPrice().]

Program:

```
import java.util.Scanner;
public class Book {
static String Name;
static int ID;
static double Price;
static String Author;

Book (String Name, int ID, double Price, String Author) {
this.Name= Name;
this.ID=ID;
this.Price = Price;
this.Author = Author;
}
public static int getId() {
return ID;
}
public static String getName() {
return Name;
}
public static double getPrice() {
return Price;
}
public static String getAuthor() {
return Author.toUpperCase();
}
public static void main(String[] args) {
try {
Scanner scan = new Scanner (System.in);
Book b = new Book (Name, ID, Price, Author);
System.out.println ("Enter the number of books: ");
int n = scan.nextInt();
int i;
for (i=0; i<n; i++) {
System.out.println("Enter Name: ");
b.Name = scan.next();
```

```
System.out.println("Enter ID: ");
b.ID = scan.nextInt();
System.out.println("Enter price: ");
b.Price = scan.nextDouble();
System.out.println("Enter Authors Name: ");
b.Author = scan.next();
System.out.println("Details: ");
System.out.println("ID: " + b.getId());
System.out.println("Name: " + b.getName());
System.out.println("Price: " + b.getPrice());
System.out.println("Author: " + b.getAuthor());
}
if (n>1) {
double total = 0;
for (i=0; i<n; i++)
total += Price;
System.out.println("Total cost: " + "Rs"+total);
}
}
catch (Exception e) {
System.out.println(e + " Enter Valid Value");
}
}
}
```

Output:

Task1. Add author details and print author names in uppercase

Input:	Output:
Name: HarryPotter	Name: HarryPotter
ID: 997634	ID: 997634
Price: 999	Price: 999
Author: JKRowling	Author: JKROWLING

Task2: Raise and catch exception when Book ID is not an integer

Input:	Output:
Name: Harry Potter	Name: Harry Potter
ID:	

99A634					Exception: Enter Valid Value

Price: 999						Price: 999

Author: JKRowling				Author: JKROWLING

Task3: If customer buys two or more books, the total price need to be displayed as "Total Cost = Rs xyz.ab".

Input:						Output:

Name: Harry Potter				Name: Harry Potter

ID: 997634				ID: 997634

Price: 999					Price: 999

Author: JKRowling				Author: JKROWLING

Name: Secret7					Name: Secret7

ID:997632						ID:997632

Price: 799						Price: 799
Author:Charles						Author: CHARLES

Total Price: Rs 1798

Q2. Create a class as Student containing ID, Marks (array of 5). Now create methods for students to find the total and print the student score. Identify if the student is passed or failure with a minimum mark as 40M.

Program:

```
import java.util.*;
public class Student
{
   String name, id;
   double marks[];
   public Student()
   {
      id = "";
      marks = new double[5];
   }
   public boolean input()throws Exception
```

```
{
   Scanner sc = new Scanner(System.in);
   System.out.print("Enter ID : ");
   id = sc.nextLine();
   System.out.print("Enter Name: ");
   name = sc.nextLine();
   for(int x = 0; x<=4; x++)
   {
      System.out.print("M"+(x+1)+" : ");
      try
      {
      marks[x] = Double.parseDouble(sc.nextLine());
      }
      catch(Exception e)
      {
      System.out.println("Invalid Input");
      return false;
      }
   }
   return true;
}
public void totalMarks()
{
   double total = 0.0;
   for(int x = 0; x<=4; x++)
      total += marks[x];
   System.out.println("Total Marks of Student ID : "+id+" = "+total);
   if(total < 40)
      System.out.println("Student has failed");
   else
      System.out.println("Student has passed");
}
public boolean nameCompare(String name1)
{
String name2 = name;
String l1[] = name1.split(" ");
String l2[] = name2.split(" ");
if(l1[1].equals(l2[1]))
{
System.out.println("Name 1 : "+name1);
System.out.println("Name 2 : "+name2);
System.out.println("Exception raised same last_name");
return true;
```

```
    }
    return false;

    }
    public int convert()
    {
    String s = name;
    int sum = 0;
    for(int x =0; x<s.length(); x++)
    {
    char ch = s.charAt(x);
    sum += ch;
    }
    return sum;
    }
    public static void main(String args[]) throws Exception
    {
    Student std1 = new Student();
    if(std1.input())
    {
    std1.totalMarks();
    }
    Student std2 = new Student();
    if(std2.input())
    {
    std2.totalMarks();
    if(std1.nameCompare(std2.name))
    return;
    }
    System.out.println("ASCII of Student "+std1.name+" =
"+std1.convert());
    System.out.println("ASCII of Student "+std2.name+" =
"+std2.convert());
    }
}
```

Output:
Task 1: Raise and Catch an exception when the marks entered is invalid.

Input;								Output:

ID: 2960								ID:2960

Marks in Sub0: 98						Grand Total: 239

Sub1: 68							Percentage: 59

Sub2: 40 Student has failed
Sub3: 33

Input;								Enter Valid Marks

ID: 9990							ID: 9990

Marks in Sub0: 90						Grand Total: 190

Sub1: 89							Percentage: 47

Sub2: 67
Sub3: -56 Student has failed

Task 2: if two students have same last_name, display complete name and raise an exception as same last_name

Input;								Output
EnterID: 2968								Total marks
Enter name: Arya anand								Of Student ID: 2968
M1: 90								= 474.0
M2: 92								Student has
M3: 97								Passed.
M4: 96								
M5: 99								Total marks of Student ID: 2948
EnterID: 2948								= 463.0
Enter Name: Aryaman anand								Student has passed
M1: 92 M2:89 M3:95 M4: 96 M5:91								Name1: Arya anand Name2: Aryaman anand Exception raised same last_name

Task3: Convert the students name into ASCII Characters.

Input;									Output:

ID: 0102									ID: 0102

Name: ARYA						ASCII: 65828965

Marks in Sub0: 80					Grand Total: 298

Sub1: 76							Percentage: 74

Sub2: 69 Student has passed
Sub3: 73

Q3. Write a menu driven program to do the following:
-To compare two strings
-To convert the uppercase character to lower and vice-versa
-To display whether an entered string is a substring of the other or not
-If the entered string is a substring of the other, replace it with "Hello"

Program:

```
import java.util.InputMismatchException;
import java.util.Scanner;
import java.lang.*;
public class Multiple {
Scanner sc = new Scanner(System.in);
public String str1, str2, str3, ss;
char ch;
public
void compare(){
System.out.println("Enter the first string: ");
str1 = sc.nextLine();
System.out.println("Enter the second string: ");
str2 = sc.nextLine();
if(str1.equals(str2)){
System.out.println("The strings are equal");
}
else
System.out.println("The strings are not equal.");
}
void convert() {
System.out.println("Enter a character to convert it to the opposite case: ");
ch = sc.next().charAt(0);
if (ch >= 'a' && ch <= 'z' && ch != ' ') {
```

```
System.out.println("The character converted to Upper Case is: " +
Character.toUpperCase(ch));
} else if (ch >= 'A' && ch <= 'Z' && ch != ' ') {
System.out.println("The character converted to Lower Case is: " +
Character.toLowerCase(ch));
} else {
System.out.println("Error! Enter a character! ");
}
}
void substring(){
System.out.println("Enter the main string: ");
str3 = sc.nextLine();
System.out.println("Enter the string whose presence you want to
check in the main string: ");
ss = sc.nextLine();
if(str3.contains(ss)) {
String str4 = str3.replace(ss, "Hello");
System.out.println("The new string is: " + str4);
}
else{
System.out.println("The string does not contain the expected
substring! ");
}
}
public static void main(String []args){
Multiple ob = new Multiple();
Scanner sc = new Scanner(System.in);
System.out.println("Choose: ");
System.out.println("Enter 1 to compare strings! ");
System.out.println("Enter 2 to convert characters to opposite cases!
");
System.out.println("Enter 3 to check if a certain string contains
another certain sub-string! ");
int n = sc.nextInt();
try {
switch(n){
case 1:
ob.compare();
break;
case 2:
ob.convert();
break;
case 3:
ob.substring();
```

```
break;
case 4:{
throw new InputMismatchException("Invalid Input");}
}
}catch(Exception e) {
System.out.println("Enter Valid Value");
}
}
}
```

Output:

Choose:

Enter 1 to compare strings!

Enter 2 to convert characters to opposite cases!

Enter 3 to check if a certain string contains another certain sub-string!

Task 1: Input your name as firstName and secondName as atMIT
Choose: 3
Input : Aryaman atMIT
Searching for: Aryaman
Output: Hello atMIT

Task 3: Raise and Catch exception if the switch case entered is 5/v.
Choose: 5/v
Output: Exception, Enter Valid Value

Task 4: Take input to show the String match is True.
Choose: 1
Input:
String 1: Hello
String 2: World
Output: The strings are not equal.

Choose: 1
Input:
String1: Hello
String2: Hello
Output: The strings are equal.