BCAP 287

Java Lab

PART – A

# 1. A cloth showroom has announced the following seasonal discounts on purchase of items:

|  |  |  |
| --- | --- | --- |
| Purchase Value | Discount amount (%) | |
| Mill cloth | Handloom items |
| 0 - 250 | - | 5 |
| 251 - 500 | 5 | 7.5 |
| 501 - 750 | 7.5 | 10 |
| Above 750 | 10 | 15 |

# Write a program using switch and if statements to compute the net amount to be paid by customer. [if and switch]

import java.io.\*;

import java.math.\*;

class A\_1\_Customer

{

public static void main(String args[])

{

float totalVal=0;

float totalDis=0;

float mValue=0;

float hValue=0;

float mDiscount =0;

float hDiscount =0;

int ch;

try

{

do

{

mDiscount =0;

hDiscount =0;

System.out.println("\n========================================");

System.out.println(" MENU ");

System.out.println("========================================");

System.out.println("1.Enter value of mill item");

System.out.println("2.Enter value of handloom item");

System.out.println("3.Net value of item for customer");

System.out.println("4.Exit");

System.out.println("========================================");

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

BufferedReader in = new BufferedReader (new InputStreamReader(System.in));

ch=Integer.parseInt(in.readLine());

switch(ch)

{

case 1:

System.out.print("Enter Purchase value of mill item: ");

mValue=Float.parseFloat(in.readLine());

if(mValue<250 && mValue>0)

mDiscount=mDiscount+mValue\*0.0f;

else if(mValue<=500 && mValue>=251)

mDiscount=mDiscount+mValue\*0.050f;

else if(mValue<=750 && mValue>501)

mDiscount=mDiscount+mValue\*0.075f;

else if(mValue>750)

mDiscount=mDiscount+mValue\*0.10f;

else

mDiscount=mDiscount+mValue\*0.0f;

System.out.println("\n The purchase value for mill item of the customer is "+mValue+" and discount amount is "+mDiscount);

totalVal+=mValue;

totalDis+=mDiscount;

break;

case 2:

System.out.print("Enter Purchase value of handloom item: ");

hValue=Float.parseFloat(in.readLine());

if(hValue<250 && hValue>0)

hDiscount =hDiscount +hValue\*0.05f;

else if(hValue<=500 && hValue>=251)

hDiscount =hDiscount +hValue\*0.075f;

else if(hValue<=750 && hValue>501)

hDiscount =hDiscount +hValue\*0.10f;

else if(hValue>750)

hDiscount=hDiscount +hValue\*0.15f;

else

hDiscount=hDiscount +hValue\*0.0f;

System.out.println("\nThe purchase amount for handlooom item of the customer is "+hValue+" & discountamount is "+hDiscount);

totalVal+=hValue;

totalDis+=hDiscount;

break;

case 3:

double netValue = (double)( totalVal - totalDis);

System.out.println("Total Item Purchase value of the customer is "+totalVal+" & discount is "+totalDis+"\n");

System.out.println("Net amount to be paid by the customer is "+ netValue +"\n");

break;

case 4:

System.exit(0);

default:

System.out.println("Invalid Choice! Try again");

break;

}

}

while(ch!=4);

}

catch(Exception e)

{

System.out.println(e);

}

}

}

# Output:

========================================

MENU

========================================

1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 1

Enter Purchase value of mill item: 100

The purchase value for mill item of the customer is 100.0 and discount amount is 0.0

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MENU

========================================

1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 1

Enter Purchase value of mill item: 280

The purchase value for mill item of the customer is 280.0 and discount amount is 14.0

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MENU

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1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 1

Enter Purchase value of mill item: 550

The purchase value for mill item of the customer is 550.0 and discount amount is 41.25

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MENU

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1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 1

Enter Purchase value of mill item: 800

The purchase value for mill item of the customer is 800.0 and discount amount is 80.0

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MENU

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1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 1

Enter Purchase value of mill item: 2000

The purchase value for mill item of the customer is 2000.0 and discount amount is 200.0

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MENU

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1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 2

Enter Purchase value of handloom item: 6

The purchase amount for handlooom item of the customer is 6.0 & discountamount is 0.3

========================================

MENU

========================================

1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 2

Enter Purchase value of handloom item: 300

The purchase amount for handlooom item of the customer is 300.0 & discountamount is 22.5

========================================

MENU

========================================

1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 2

Enter Purchase value of handloom item: 600

The purchase amount for handlooom item of the customer is 600.0 & discountamount is 60.0

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MENU

========================================

1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 2

Enter Purchase value of handloom item: 800

The purchase amount for handlooom item of the customer is 800.0 & discountamount is 120.00001

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MENU

========================================

1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 3

Total Item Purchase value of the customer is 5436.0 & discount is 538.05

Net amount to be paid by the customer is 4897.9501953125

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MENU

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1.Enter value of mill item

2.Enter value of handloom item

3.Net value of item for customer

4.Exit

========================================

Enter your choice: 4

# 2. Write a program that uses both recursive and non-recursive functions to print the Fibonacci sequence. [functions and recursive functions]

import java.util.Scanner;

public class Fibonacci {

public static void main(String args[]) {

System.out.println("Enter the number n to print the fibonacci series");

Scanner input = new Scanner(System.in);

int n = input.nextInt();

input.close();

System.out.println("First " + n + " Fibonacci number using non-recursive function");

getFib(n);

System.out.println("\nFirst " + n + " Fibonacci number using recursive function");

for (int i = 0; i < n; i++) {

System.out.print(getFibSeq(i)+ "\t");

}

}

public static void getFib(int n) {

int n1 = 0, n2 = 1, n3, i;

for (i = 1; i <= n; i++) {

System.out.print(n1 + "\t");

n3 = n1 + n2;

n1 = n2;

n2 = n3;

}

}

public static int getFibSeq(int n) {

if (n == 0 || n == 1) {

return n;

}

return getFibSeq(n - 1) + getFibSeq(n - 2);

}

}

**Output:**

Enter the number n to print the fibonacci series

5

First 5 Fibonacci number using non-recursive function

0 1 1 2 3

First 5 Fibonacci number using recursive function

0 1 1 2 3

# 3. Write a program that accepts series of integers as command line argument, arrange them using bubble sort method and display. [command line argument and arrays]

import java.io.\*;

import java.util.Arrays;

import java.util.List;

import java.util.stream.Collectors;

public class A\_2\_Bubble

{

static void bubbleSort(int arr[])

{

int n = arr.length;

int temp=0;

for (int i=0;i<n ;i++)

{

for (int j = 1;j<n; j++)

{

if(arr[j-1]>arr[j])

{

temp=arr[j-1];

arr[j-1]= arr[j];

arr[j]=temp;

}

}

}

}

public static void main(String args[])

{

int arr[] = new int[args.length];

System.out.println("Entered array elements are");

for(int i=0; i<(args.length);i++)

{

arr[i]=Integer.valueOf(args[i]);

System.out.print(arr[i]+" ");

}

System.out.println("\n\nElements before sorting:");

for(int i=0; i<args.length;i++)

{

System.out.print(arr[i]+"\t");

}

bubbleSort(arr);

System.out.println("\nElements after bubble sort:");

// int[] narr = new int [10];

for(int i=0;i<arr.length; i++)

{

// if(arr[i]==0)

// {

// continue;

// }

// else

// {

// narr[i]=arr[i];

// }

System.out.print(arr[i]+"\t");

}

}

}

**Output:**

java A\_2\_Bubble 4 3 6 8 1 0 -5 5

Entered array elements are

4 3 6 8 1 0 -5 5

Elements before sorting:

4 3 6 8 1 0 -5 5

Elements after bubble sort:

-5 0 1 3 4 5 6 8

# 4. Define a class named Pay with data members String name, double salary, double da, double hra, double pf, double grossSal, double netSal and methods: Pay(String n, double s) - Parameterized constructor to initialize the data members, void calculate() - to calculate the following salary components, and void display() - to display the employee name, salary and all salary components. Dearness Allowance = 15% of salary House Rent Allowance = 10% of salary Provident Fund = 12% of salary Gross Salary = Salary + Dearness Allowance + House Rent Allowance Net Salary = Gross Salary - Provident Fund Write a main method to create object of the class and call the methods to compute and display the salay details. [class basics]

import java.util.Scanner;

public class Pay

{

String name;

double salary, da, hra, pf, grossSal, netSal;

public Pay(String n, double s)

{

name = n;

salary = s;

da=hra=pf=grossSal=netSal=0;

}

void calculate()

{

da=salary\*15.0/100;

hra=salary\*10.0/100;

pf=salary\*12.0/100;

grossSal=salary+da+hra;

netSal=grossSal-pf;

}

void display()

{

System.out.println("Employee Name: " + name);

System.out.println("Salary: " + salary );

System.out.println("Dearness Allowance: " + da);

System.out.println("House Rent Allowances: " + hra);

System.out.println("Provident Fund: " + pf);

System.out.println("Gross Salary: " + grossSal);

System.out.println("Net Salary: " + netSal);

}

public static void main(String args[])

{

Scanner in = new Scanner(System.in);

System.out.println("Enter Employee name: ");

String empName= in.nextLine();

System.out.println("Enter Salary: ");

double empSal= in.nextDouble();

Pay obj = new Pay(empName, empSal);

obj.calculate();

obj.display();

}

}

**Output:**

Enter Employee name:

Vignesh

Enter Salary:

40000

Employee Name: Vignesh

Salary: 40000.0

Dearness Allowance: 6000.0

House Rent Allowances: 4000.0

Provident Fund: 4800.0

Gross Salary: 50000.0

Net Salary: 45200.0

# 5. Define a class called Time with data members Hours, Minutes and Seconds. Read two time values and find difference between them. Use constructors to initialize data members. [constructor overloading]

import java.util.Scanner;

public class Time

{

int seconds,minutes, hours;

public Time(int hours,int minutes, int seconds)

{

this.hours=hours;

this.minutes=minutes;

this.seconds=seconds;

}

public static void main(String args[])

{

int sth,stm,sts,enh,enm,ens;

Scanner sc=new Scanner(System.in);

System.out.println("Enter the start time (hours minutes seconds)");

sth=sc.nextInt();

stm=sc.nextInt();

sts=sc.nextInt();

System.out.println("Enter the stop time (hours minutes seconds)");

enh=sc.nextInt();

enm=sc.nextInt();

ens=sc.nextInt();

Time start = new Time(sth, stm, sts);

Time stop = new Time(enh, enm, ens);

Time diff;

diff = difference(start, stop);

System.out.printf("Time DIFFRENCE:\n %d:%d:%d", start.hours, start.minutes, start.seconds);

System.out.printf("\n-%d:%d:%d",stop.hours, stop.minutes, stop.seconds);

System.out.printf("\n----------\n=%d:%d:%d\n", diff.hours,diff.minutes, diff.seconds);

}

public static Time difference(Time start, Time stop)

{

Time diff = new Time(0, 0, 0);

if(start.seconds>stop.seconds)

{

--stop.minutes;

stop.seconds+=60;

}

diff.seconds = stop.seconds -start.seconds;

if(start.minutes>stop.minutes)

{

--stop.hours;

stop.minutes+=60;

}

diff.minutes=stop.minutes-start.minutes;

diff.hours=stop.hours-start.hours;

return(diff);

}

}

Output:

1.

Enter the start time (hours minutes seconds)

8 12 15

Enter the stop time (hours minutes seconds)

12 34 55

Time DIFFRENCE:

8:12:15

-12:34:55

----------

=4:22:40

2

Enter the start time (hours minutes seconds)

40 25 30

Enter the stop time (hours minutes seconds)

50 40 10

Time DIFFRENCE:

40:25:30

-50:39:70

----------

=10:14:40

3

Enter the start time (hours minutes seconds)

40 25 30

Enter the stop time (hours minutes seconds)

60 10 60

Time DIFFRENCE:

40:25:30

-59:70:60

----------

=19:45:30