Assignment 1 – CAP680

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Q1: Create an app in which user enter his NTS and F.Sc marks and your program will help student in selection of university. Based on these marks Student will be allocated a seat at different department of different university.

University Name	Departments	Criteria
Oxford University	IT	Above 70% in Fsc. and 70 % in NTS
Oxford University	Engg	Above 70% in Fsc. and 60 % in NTS
Oxford University	Telecommunication	Above 70% in Fsc. and 50 % in NTS
MIT	IT	70% -60 % in Fsc. and 50 % in NTS
MIT	Engg	59% – 50 % in Fsc. and 50 % in NTS
MIT	Computer	Above 40% and below 50 % in Fsc. and NTS

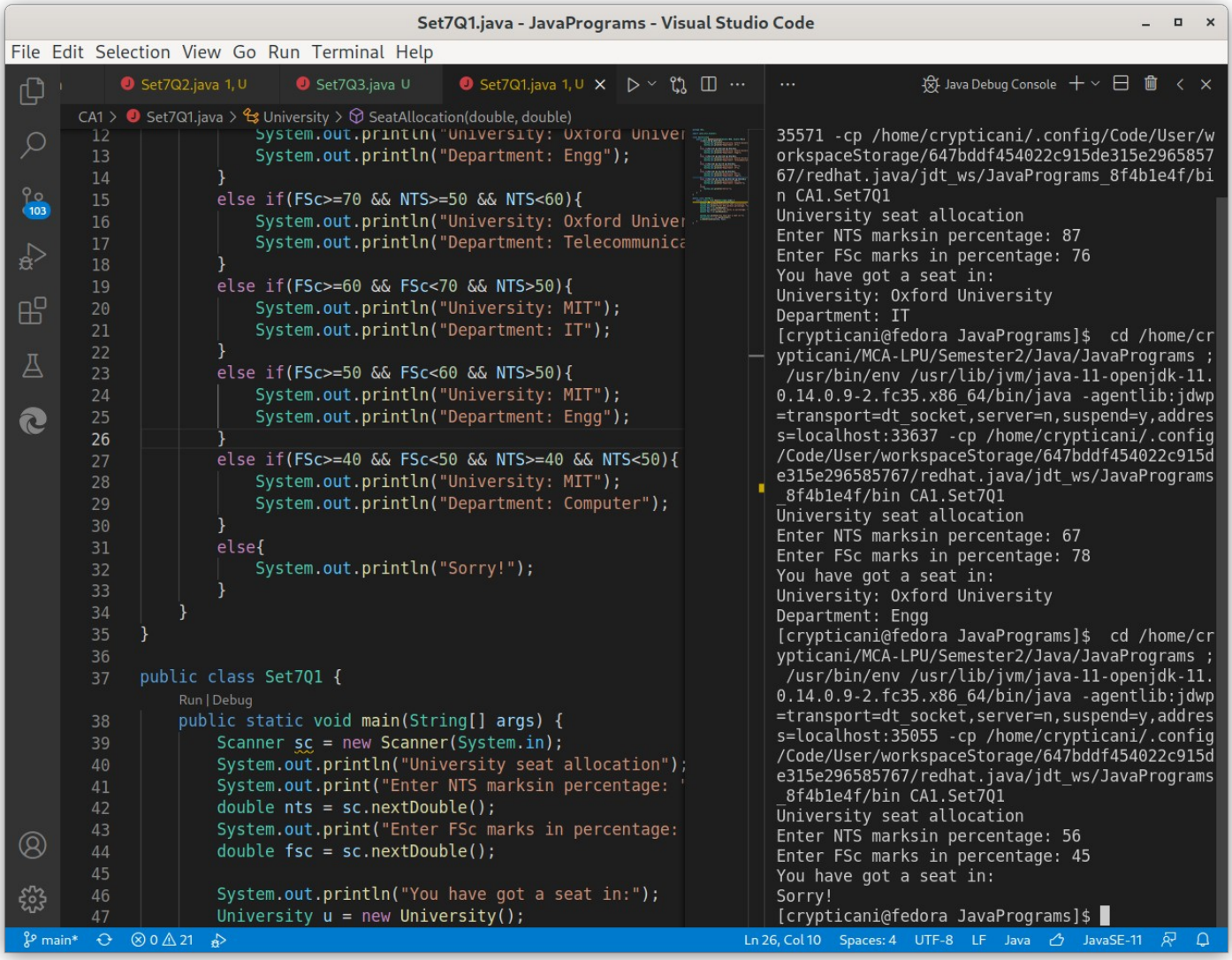
Code:

```
package CA1;

import java.util.Scanner;

class University{
    public void SeatAllocation(double NTS, double Fsc){
//checking conditions for seat allocation
        if(FSc>=70 && NTS>=70){
            System.out.println("University: Oxford
University");
            System.out.println("Department: IT");
        }
        else if(FSc>=70 && NTS>=60 && NTS<70){
            System.out.println("University: Oxford
University");
            System.out.println("Department: Engg");
```

```
        }
        else if(FSc>=70 && NTS>=50 && NTS<60){
            System.out.println("University: Oxford
University");
            System.out.println("Department:
Telecommunication");
        }
        else if(FSc>=60 && FSc<70 && NTS>50){
            System.out.println("University: MIT");
            System.out.println("Department: IT");
        }
        else if(FSc>=50 && FSc<60 && NTS>50){
            System.out.println("University: MIT");
            System.out.println("Department: Engg");
        }
        else if(FSc>=40 && FSc<50 && NTS>=40 && NTS<50){
            System.out.println("University: MIT");
            System.out.println("Department: Computer");
        }
        else{
            System.out.println("Sorry!");
        }
    }
}

public class Set7Q1 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("University seat allocation");
        System.out.print("Enter NTS marks(percentage): ");
        double nts = sc.nextDouble();
        System.out.print("Enter FSc marks(percentage): ");
        double fsc = sc.nextDouble();
//creating an object of the University class and send marks
//of NTS and Fsc to get the seat allocation result.
        System.out.println("You have got a seat in:");
```

```
        University u = new University();
        u.SeatAllocation(nts, fsc);
    }
}
```

Screenshot:



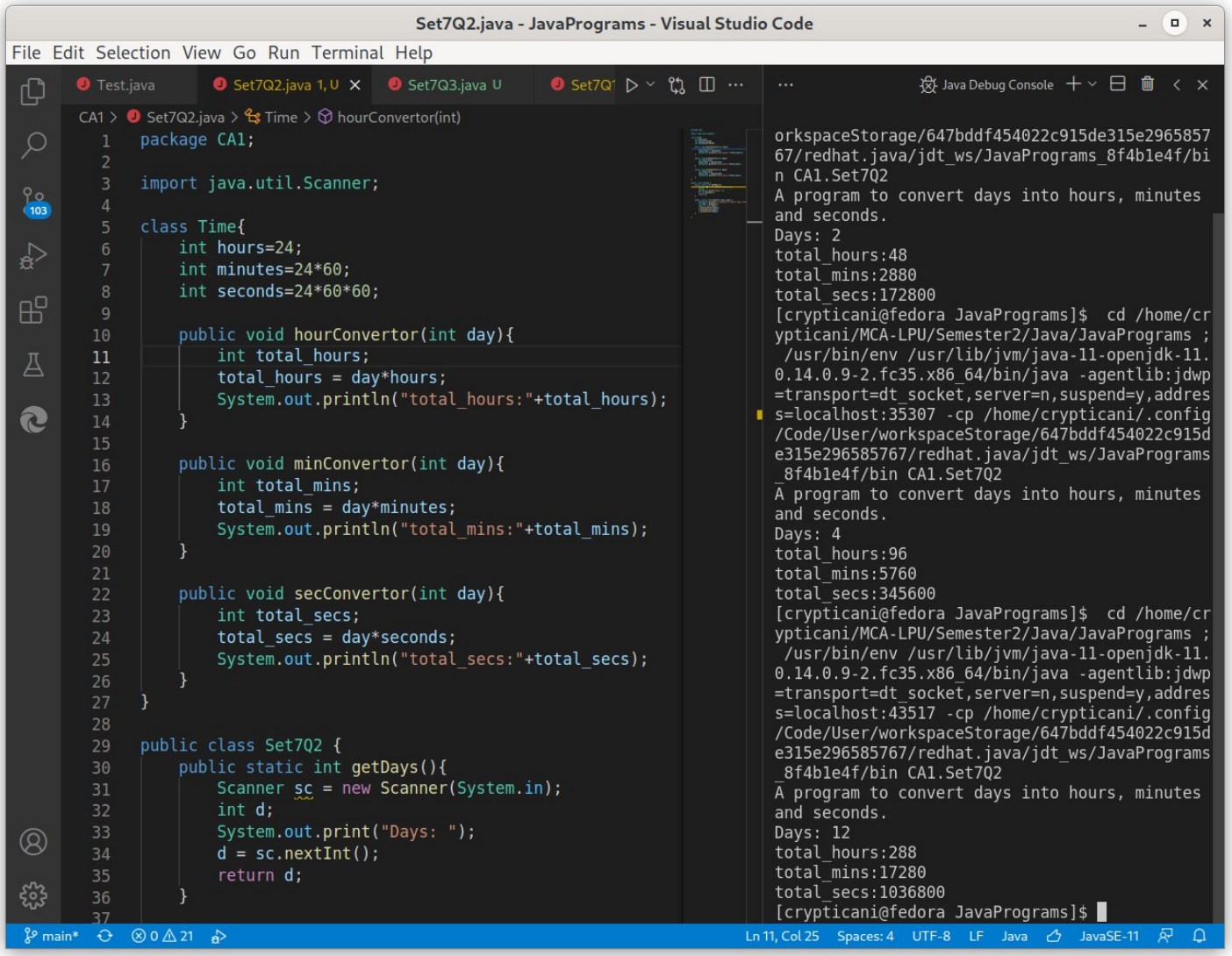
Q2: Create a class named 'Time' with data members (hours, mins, secs). Define methods in this class named 'hourConvertor', 'minConvertor' and 'secConvertor'. Calculate total hours, mins and secs for any integer value (in days).
For eg:
Input : 2 (days)
output: total_hours:48
total_mins:2880
total_secs:172800

Code:

```
package CA1;

import java.util.Scanner;

class Time{
    int hours=24;
    int minutes=24*60;
    int seconds=24*60*60;
//function to convert days to hours
    public void hourConvertor(int day){
        int total_hours;
        total_hours = day*hours;
        System.out.println("total_hours:"+total_hours);
    }
//function to convert days to minutes
    public void minConvertor(int day){
        int total_mins;
        total_mins = day*minutes;
        System.out.println("total_mins:"+total_mins);
    }
//function to convert days to seconds
    public void secConvertor(int day){
        int total_secs;
        total_secs = day*seconds;
        System.out.println("total_secs:"+total_secs);
    }
}
```

```
public class Set7Q2 {
    public static int getDays(){
        Scanner sc = new Scanner(System.in);
        int d;
        System.out.print("Days: ");
        d = sc.nextInt();
        return d;
    }

    public static void main(String[] args) {
        System.out.println("A program to convert days into
hours, minutes and seconds.");
//getting no of days as an input
        int days = getDays();
//creating object of Time class and get the days converted
//into hours, minutes and seconds.
        Time t = new Time();
        t.hourConvertor(days);
        t.minConvertor(days);
        t.secConvertor(days);
    }

}
```

Screenshot:


Set7Q2.java - JavaPrograms - Visual Studio Code
File Edit Selection View Go Run Terminal Help
Test.java
Set7Q2.java 1, U
Set7Q3.java U
CA1 > Set7Q2.java > Time > hourConvertor(int)
package CA1;
import java.util.Scanner;
class Time{
int hours=24;
int minutes=24*60;
int seconds=24*60*60;
public void hourConvertor(int day){
int total_hours;
total_hours = day*hours;
System.out.println("total_hours:"+total_hours);
}
public void minConvertor(int day){
int total_mins;
total_mins = day*minutes;
System.out.println("total_mins:"+total_mins);
}
public void secConvertor(int day){
int total_secs;
total_secs = day*seconds;
System.out.println("total_secs:"+total_secs);
}
}
public class Set7Q2 {
public static int getDays(){
Scanner sc = new Scanner(System.in);
int d;
System.out.print("Days: ");
d = sc.nextInt();
return d;
}
Java Debug Console
orkspaceStorage/647bddf454022c915de315e296585767/redhat.java/jdt_ws/JavaPrograms_8f4b1e4f/bin CA1.Set7Q2
A program to convert days into hours, minutes and seconds.
Days: 2
total_hours:48
total_mins:2880
total_secs:172800
[crypticani@fedora JavaPrograms]$ cd /home/crypticani/MCA-LPU/Semester2/Java/JavaPrograms ; /usr/bin/env /usr/lib/jvm/java-11-openjdk-11.0.14.0.9-2.fc35.x86_64/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:35307 -cp /home/crypticani/.config/Code/User/workspaceStorage/647bddf454022c915de315e296585767/redhat.java/jdt_ws/JavaPrograms_8f4b1e4f/bin CA1.Set7Q2
A program to convert days into hours, minutes and seconds.
Days: 4
total_hours:96
total_mins:5760
total_secs:345600
[crypticani@fedora JavaPrograms]$ cd /home/crypticani/MCA-LPU/Semester2/Java/JavaPrograms ; /usr/bin/env /usr/lib/jvm/java-11-openjdk-11.0.14.0.9-2.fc35.x86_64/bin/java -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:43517 -cp /home/crypticani/.config/Code/User/workspaceStorage/647bddf454022c915de315e296585767/redhat.java/jdt_ws/JavaPrograms_8f4b1e4f/bin CA1.Set7Q2
A program to convert days into hours, minutes and seconds.
Days: 12
total_hours:288
total_mins:17280
total_secs:1036800
[crypticani@fedora JavaPrograms]$
main*
Ln 11, Col 25
Spaces: 4
UTF-8
LF
Java
JavaSE-11

Q3: Suppose there is XYZ Company and there are different departments like production, marketing, finance, sales etc. Manager of the company want to know about the detail of the employees who are highly paid. Write a program using the concept of classes to implement the same.

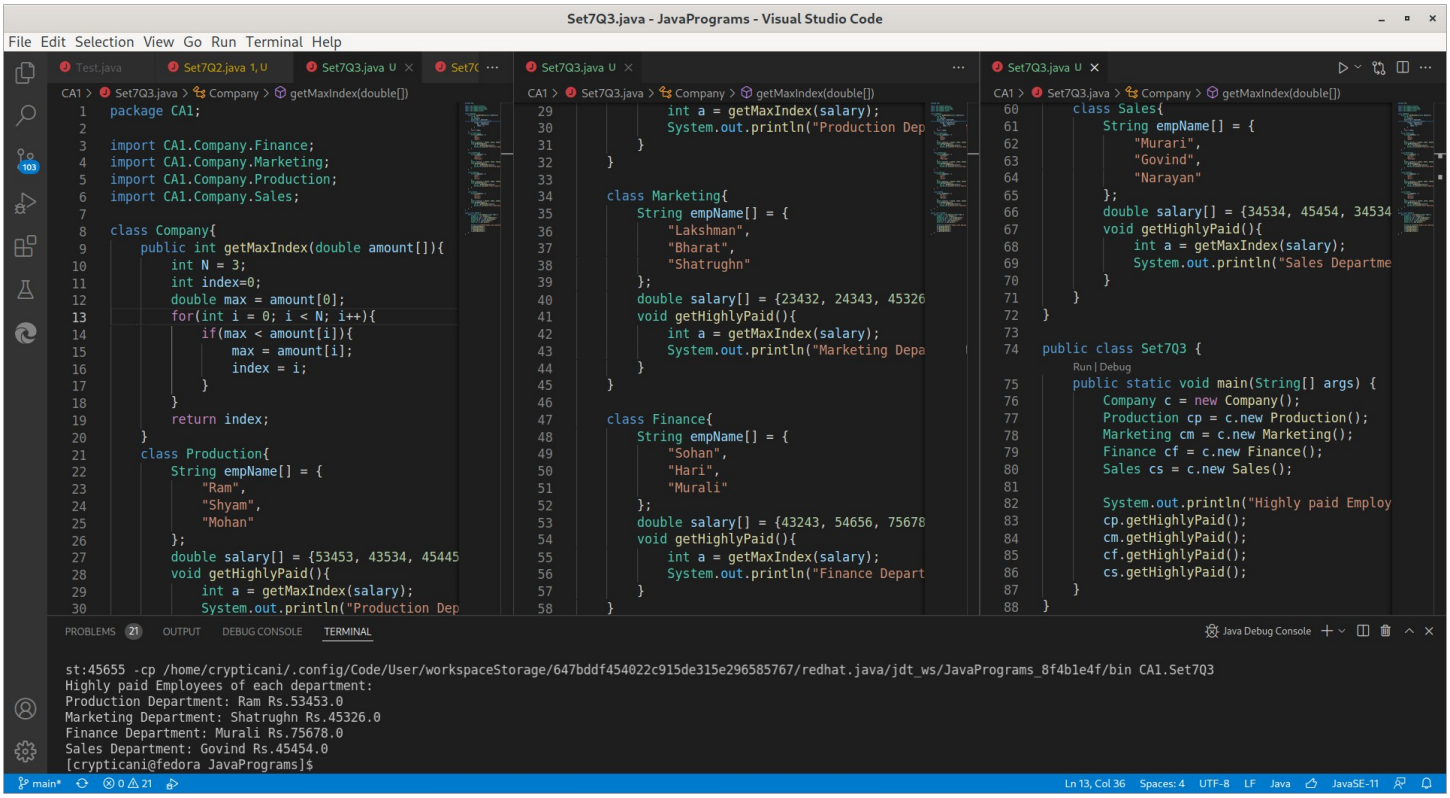
Code:

```
package CA1;

import CA1.Company.Finance;
import CA1.Company.Marketing;
import CA1.Company.Production;
import CA1.Company.Sales;

class Company{
//function to get index of highest salary
    public int getMaxIndex(double amount[]){
        int N = 3;
        int index=0;
        double max = amount[0];
        for(int i = 0; i < N; i++){
            if(max < amount[i]){
                max = amount[i];
                index = i;
            }
        }
        return index;
    }
//different sub classes for each department with details of
//some employees and their salary.
    class Production{
        String empName[] = {
            "Ram",
            "Shyam",
            "Mohan"
        };
        double salary[] = {53453, 43534, 45445};
        void getHighlyPaid(){
```

```
            int a = getMaxIndex(salary);
            System.out.println("Production Department: "+
empName[a]+" Rs."+salary[a]);
        }
    }

    class Marketing{
        String empName[] = {
            "Lakshman",
            "Bharat",
            "Shatrughn"
        };
        double salary[] = {23432, 24343, 45326};
//function to get the highly paid employee
        void getHighlyPaid(){
            int a = getMaxIndex(salary);
            System.out.println("Marketing Department: "+
empName[a]+" Rs."+salary[a]);
        }
    }

    class Finance{
        String empName[] = {
            "Sohan",
            "Hari",
            "Murali"
        };
        double salary[] = {43243, 54656, 75678};
        void getHighlyPaid(){
            int a = getMaxIndex(salary);
            System.out.println("Finance Department: "+
empName[a]+" Rs."+salary[a]);
        }
    }

    class Sales{
```

```
        String empName[] = {
            "Murari",
            "Govind",
            "Narayan"
        };
        double salary[] = {34534, 45454, 34534};
        void getHighlyPaid(){
            int a = getMaxIndex(salary);
            System.out.println("Sales Department: "+
empName[a]+" Rs."+salary[a]);
        }
    }
}

public class Set7Q3 {
    public static void main(String[] args) {
        Company c = new Company();
//creating objects of sub classes
        Production cp = c.new Production();
        Marketing cm = c.new Marketing();
        Finance cf = c.new Finance();
        Sales cs = c.new Sales();

        System.out.println("Highly paid Employees of each
department:");
//calling functions of each sub class to get the names of
//highly paid employee
        cp.getHighlyPaid();
        cm.getHighlyPaid();
        cf.getHighlyPaid();
        cs.getHighlyPaid();
    }
}
```

Screenshot:


Set7Q3.java - JavaPrograms - Visual Studio Code
File Edit Selection View Go Run Terminal Help
Test.java
Set7Q2.java 1, U
Set7Q3.java U
CA1 > Set7Q3.java > Company > getMaxIndex(double[])
package CA1;
import CA1.Company.Finance;
import CA1.Company.Marketing;
import CA1.Company.Production;
import CA1.Company.Sales;
class Company{
public int getMaxIndex(double amount[]){
int N = 3;
int index=0;
double max = amount[0];
for(int i = 0; i < N; i++){
if(max < amount[i]){
max = amount[i];
index = i;
}
}
return index;
}
class Production{
String empName[] = {
"Ram",
"Shyam",
"Mohan"
};
double salary[] = {53453, 43534, 45445
void getHighlyPaid(){
int a = getMaxIndex(salary);
System.out.println("Production Dep
int a = getMaxIndex(salary);
System.out.println("Production Dep
}
}
class Marketing{
String empName[] = {
"Lakshman",
"Bharat",
"Shatrughn"
};
double salary[] = {23432, 24343, 45326
void getHighlyPaid(){
int a = getMaxIndex(salary);
System.out.println("Marketing Depa
}
}
class Finance{
String empName[] = {
"Sohan",
"Hari",
"Murali"
};
double salary[] = {43243, 54656, 75678
void getHighlyPaid(){
int a = getMaxIndex(salary);
System.out.println("Finance Depart
}
}
class Sales{
String empName[] = {
"Murari",
"Govind",
"Narayan"
};
double salary[] = {34534, 45454, 34534
void getHighlyPaid(){
int a = getMaxIndex(salary);
System.out.println("Sales Departme
}
}
public class Set7Q3 {
Run | Debug
public static void main(String[] args) {
Company c = new Company();
Production cp = c.new Production();
Marketing cm = c.new Marketing();
Finance cf = c.new Finance();
Sales cs = c.new Sales();
System.out.println("Highly paid Employ
cp.getHighlyPaid();
cm.getHighlyPaid();
cf.getHighlyPaid();
cs.getHighlyPaid();
}
}
PROBLEMS 21
OUTPUT
DEBUG CONSOLE
TERMINAL
Java Debug Console
st:45655 -cp /home/crypticani/.config/Code/User/workspaceStorage/647bddf454022c915de315e296585767/redhat.java/jdt_ws/JavaPrograms_8f4b1e4f/bin CA1.Set7Q3
Highly paid Employees of each department:
Production Department: Ram Rs.53453.0
Marketing Department: Shatrughn Rs.45326.0
Finance Department: Murali Rs.75678.0
Sales Department: Govind Rs.45454.0
[crypticani@fedora JavaPrograms]$
main*
Ln 13, Col 36
Spaces: 4
UTF-8
LF
Java
JavaSE-11