**package** GreedyAlgorithmLab;

**import** java.util.ArrayList;

**import** java.util.Collections;

**class** jobScheduleUsingGreedy **implements** Comparable<jobScheduleUsingGreedy>

{

**public** String **jobName**;

**public int profit**;

**public int deadLines**;

**public** jobScheduleUsingGreedy(String jobName, **int** profit, **int** deadLines) {

**this**.**jobName** = jobName;

**this**.**profit** = profit;

**this**.**deadLines** = deadLines;

}

**public** jobScheduleUsingGreedy(){}

@Override

**public int** compareTo(jobScheduleUsingGreedy o) {

**if** (**this**.**profit**<o.**profit**) **return** 1;

**else return** -1;

}

}

**class** maxProfitInJobSchedule

{

**public** ArrayList<jobScheduleUsingGreedy> **arrayList**;

**public int totalProfit**;

**public int**[] **machine**;

**public** String[] **jobName**;

**public** maxProfitInJobSchedule(ArrayList<jobScheduleUsingGreedy> arrayList) {

**this**.**arrayList** = arrayList;

**this**.**machine** = **new int**[arrayList.size()+1];

**this**.**jobName** = **new** String[arrayList.size()+1];

}

**public void** initialize()

{

**for** (**int** i=1;i<**machine**.**length**;i++)

{

**machine**[i] = 0;

**jobName**[i] = **"empty"**;

}

**for** (jobScheduleUsingGreedy give : **arrayList**)

{

findTotalProfit(give.**jobName**, give.**profit** , give.**deadLines**);

}

}

**public void** findTotalProfit(String jobName, **int** profit, **int** deadlines)

{

**if** (**machine**[deadlines]==0)

{

**this**.**machine**[deadlines] = profit;

**this**.**jobName**[deadlines] = jobName;

}**else**

{

deadlines = deadlines - 1;

**if** (deadlines == 0) **return**;

**else**

{

**while** (**true**)

{

**if** (**machine**[deadlines]==0)

{

**this**.**machine**[deadlines] =profit;

**this**.**jobName**[deadlines] = jobName;

**break**;

}

**else**

{

deadlines = deadlines - 1;

}

}

}

}

}

**public void** print()

{

**for** (**int** i=1;i<**machine**.**length**;i++)

{

**totalProfit** = **totalProfit** + **machine**[i];

**if** (**jobName**[i].equals(**"empty"**)){}**else**

{

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

}

**if** (**machine**[i]==0){}**else**

{

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

System.***out***.println();

}

}

System.***out***.println(**"------------------------------"**);

System.***out***.println(**"Total profit is = "**+**totalProfit**);

}

}

**public class** JobSchedulingProblem {

**public static void** main(String[] args) {

String[] jobName = {**"a"**,**"b"**,**"c"**,**"d"**,**"e"**};

**int**[] profit = {20,15,10,5,1};

**int**[] deadLines = {2,2,1,3,3};

ArrayList<jobScheduleUsingGreedy> arrayList = **new** ArrayList<>();

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

{

arrayList.add(**new** jobScheduleUsingGreedy(jobName[i], profit[i], deadLines[i]));

}

Collections.*sort*(arrayList);

maxProfitInJobSchedule job = **new** maxProfitInJobSchedule(arrayList);

job.initialize();

job.print();

}

}