**package** AlgorithmDpPractise;

**class** rodCutUsingDP

{

**public int**[] **pieceLength**;

**public int**[] **profit**;

**public int totalLength**;

**public int**[][] **solutions**;

**public** rodCutUsingDP(**int**[] pieceLength, **int**[] profit, **int** totalLength) {

**this**.**pieceLength** = pieceLength;

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

**this**.**totalLength** = totalLength;

**this**.**solutions** = **new int**[pieceLength.**length** + 1][totalLength+1];

}

**public void** printMaxProfit()

{

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

{

**solutions**[i][0] = 0;

}

**for** (**int** j=1;j<=**totalLength**;j++)

{

**solutions**[0][j] = 0;

}

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

{

**for** (**int** j=1;j<=**totalLength**;j++)

{

**if** (**pieceLength**[i-1]<=j)

{

**solutions**[i][j]= Math.*max*(**solutions**[i-1][j],(**profit**[i-1] + **solutions**[i][j-**pieceLength**[i-1]]));

}

**else**

{

**solutions**[i][j] = **solutions**[i-1][j];

}

}

}

System.***out***.println(**"The tabulation form is :"**);

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

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

{

**for** (**int** j=0;j<=**totalLength**;j++)

{

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

}

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

}

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

System.***out***.println(**"Total profit = "**+**solutions**[**pieceLength**.**length**][**totalLength**]);

}

}

**public class** RodCut {

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

**int**[] pieceLength = {1, 2, 3, 4, 5, 6, 7, 8};

**int**[] profit = { 1, 5, 8, 9, 10, 17, 17, 20};

**int** totalLength = 4;

rodCutUsingDP rodCut = **new** rodCutUsingDP(pieceLength,profit,totalLength);

rodCut.printMaxProfit();

}

}