Practical – 8

Implement Program for "Making Change" using Dynamic Programming.

Code:
```c
#include <stdio.h>
#include <stdlib.h>
int main()
{
int m, n, i, j;
printf("Enter the Amount and Number Of coins respectively : \n");
scanf("%d %d", &m,&n);
int c[n + 1][m + 1], dc[n + 1];
printf("\nEnter the Coins : \n");
dc[0] = 0;
for (i = 1; i < n + 1; i++)
scanf("%d", &dc[i]);
for (i = 0; i < n + 1; i++)
{
for (j = 0; j <= m; j++)
c[i][j] = 0;
}
for (i = 0; i < n + 1; i++)
c[i][0] = 0;
for (i = 0; i < m + 1; i++)
{
c[0][i] = i;
}
for (i = 1; i < n + 1; i++)
{
for (j = 1; j < m + 1; j++)
{
if (dc[1] > c[0][j])
c[i][j] = 0;
else if (dc[i] <= j)
{
if ((c[i][j - dc[i]] + 1) < c[i - 1][j])
c[i][j] = (c[i][j - dc[i]] + 1);
else
c[i][j] = c[i - 1][j];
}
else
c[i][j] = c[i - 1][j];
}
}
printf("\nThe change You Get : \n");
i = n;
j = m;
while (i != 1)
{
if (c[i][j] == c[i - 1][j])
```

```
i = i - 1;
else
{
j = j - dc[i];
printf(" %d ", dc[i]);
}
}
printf("\n\n");
return 0;
}
```

Output:

```
Enter the Amount and Number Of coins respectively :
10 5
Enter the Coins :
1 2 3 5 6
The change You Get :
 5  5
```