**Practical – 8**

**Implement Program for “Making Change” using Dynamic Programming.**

**Code:**

#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:**

