

## 0/1 KNAPSACK PROGRAM 1:

### CODE:

```
#include<stdio.h>
int max(int a, int b)
{
    return (a > b)? a : b;
}
int knapSack(int W, int wt[], int val[], int n)
{
    int i, w;
    int K[n+1][W+1];
    for (i = 0; i <= n; i++)
    {
        for (w = 0; w <= W; w++)
        {
            if (i==0 || w==0)
                K[i][w] = 0;
            else if (wt[i-1] <= w)
                K[i][w] = max(val[i-1] + K[i-1][w-wt[i-1]], K[i-1][w]);
            else
                K[i][w] = K[i-1][w];
        }
    }
    return K[n][W];
}
int main()
{
    int W,n,i;
    int val[10] , wt[10] ;
    printf("Enter number of items:\n");
    scanf("%d",&n);
    printf("Enter value for each item\n");
    for(i=0;i<n;i++)
        scanf("%d",&val[i]);
    printf("Enter weight of each item respectively\n");
    for(i=0;i<n;i++)
        scanf("%d",&wt[i]);
    printf("Enter total weight : \n");
    scanf("%d",&W);
    printf("Maximum amount : %d", knapSack(W, wt, val, n));
    return 0;
}
```

## OUTPUT:

```
Ca Command Prompt
Microsoft Windows [Version 10.0.18363.720]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\dell>cd C:\MinGW\bin

C:\MinGW\bin>gcc knapsack_1.c

C:\MinGW\bin>a
Enter number of items:
4
Enter value for each item
2
4
3
5
Enter weight of each item respectively
2
4
6
5
Enter total weight :
8
Maximum amount : 7
C:\MinGW\bin>
```

## **PROGRAM 2:**

### **CODE:**

```
#include<stdio.h>
#include<string.h>

int max (int x, int y)
{ return (x > y)? x : y; }

int longestps(char *str)
{
    int n ;
    int i, j, cl;
    int L[20][20];
    n = strlen(str);
    for (i = 0; i < n; i++)
        L[i][i] = 1;

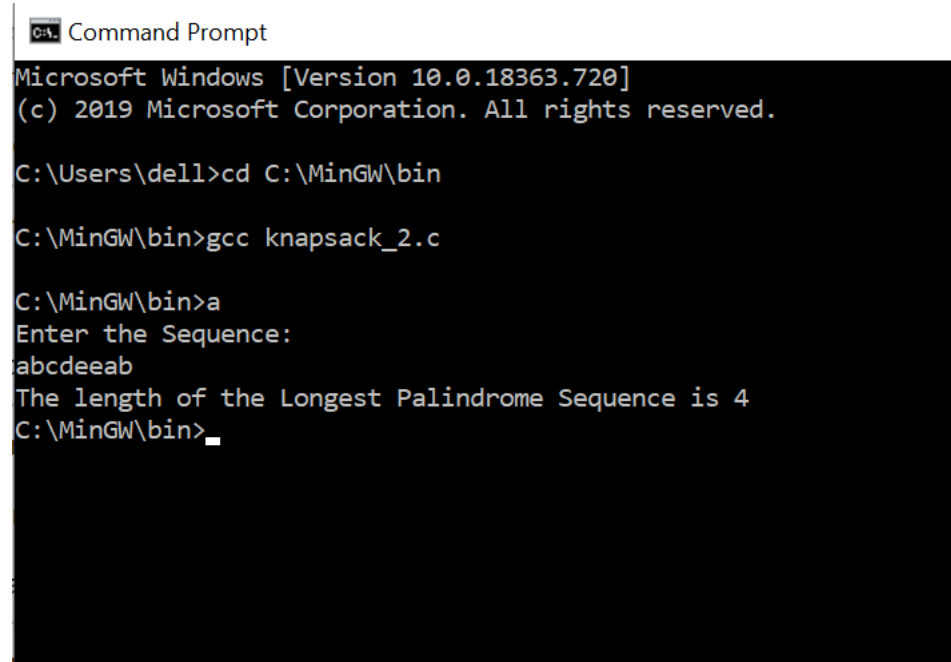
    for (cl=2; cl<=n; cl++)
    {
        for (i=0; i<n-cl+1; i++)
        {
            j = i+cl-1;
            if (str[i] == str[j] && cl == 2)
                L[i][j] = 2;
            else if (str[i] == str[j])
                L[i][j] = L[i+1][j-1] + 2;
            else
                L[i][j] = max(L[i][j-1], L[i+1][j]);
        }
    }

    return L[0][n-1];
}

int main()
{
    char seq[20];
    int n;
    printf("Enter the Sequence:\n");
    scanf("%s",seq);
    n = strlen(seq);
    printf ("The length of the Longest Palindrome Sequence is %d", longestps(seq));
}
```

```
    getchar();  
    return 0;  
}
```

## OUTPUT:



```
Command Prompt  
Microsoft Windows [Version 10.0.18363.720]  
(c) 2019 Microsoft Corporation. All rights reserved.  
  
C:\Users\dell>cd C:\MinGW\bin  
  
C:\MinGW\bin>gcc knapsack_2.c  
  
C:\MinGW\bin>a  
Enter the Sequence:  
abcdeeab  
The length of the Longest Palindrome Sequence is 4  
C:\MinGW\bin>
```