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ITE – 1004

DSA EXERISE – 1

Students of a Programming class arrive to submit assignments. Their register numbers are stored in a LIFO list in the order in which the assignments are submitted. Write a program using array to display the register number of the ten students who submitted first.

Register number of the ten students who submitted first will be at the bottom of the LIFO list. Hence pop out the required number of elements from the top so as to retrieve and display the first 10 students.

CODE

```
#include<stdio.h>

#include<string.h>

#include<conio.h>


#define MAXSIZE 100


char stack[MAXSIZE][200];

int top = -1;


void

Push (char element[])

{

  if (top + 1 >= MAXSIZE)

    {

      printf ("\nStack Overflow\n");

    }

  else

    {

      top++;

      strcpy (stack[top], element);
```

```
    }
}

void
Pop ()
{
  if (top == -1)
    {
      printf ("\nStack Underflow\n");
    }
  else
    {
      printf ("\%s is deleted!!\n", stack[top]);
      top--;
    }
}

void
Disp ()
{
  int i;
  for (i = top; i >= 0; i--)
    {
      printf ("\n%s", stack[i]);
    }
  printf ("\n");
}

void
main ()
```

```
{
  int n, i, j;
  char value[200];
  printf ("ENTER TOTAL NUMBER OF STUDENTS : ");
  scanf ("%d", &n);
  printf ("ENTER THE REGISTRATION NUMBERS\n");
  for (i = 0; i < n; i++)
    {
      int flag = 1;
      scanf ("%s", value);
      if (top != -1)
       {
         int t = top;
         for (j = 0; j <= t; j++)
           {
             if (strcmp (value, stack[j]) == 0)
              {
                flag = 0;
                printf ("\nNumber already Exists\n");
                i--;
                break;
              }
           }
         if (flag == 0)
           continue;
         Push (value);
       }
      else
       {
         Push (value);
```

```
      }
    }

  int m;
  printf ("\nENTER NUMBER OF RECORDS NEEDED\n");
  scanf ("%d", &m);
  int t = top;
  for (i = top; i >= m; i--)
    {
      Pop ();
    }
  printf ("\nFIRST %d NUMBERS ARE : ", m);
  t = top;
  Disp ();
  getch ();
}
```

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

#define MAXSIZE 100

char stack[MAXSIZE][200];
int top = -1;

void
Push (char element[])
{
  if (top + 1 >= MAXSIZE)
    {
      printf ("\nStack Overflow\n");
    }
  else
    {
      top++;
      strcpy (stack[top], element);
    }
}

void
Pop ()
{
  if (top == -1)
    {
      printf ("\nStack Underflow\n");
    }
  else
```

```
29        printf ( \nStack UnderFlow\n );
30      }
31    else
32      {
33        printf ("\%s is deleted!!\n", stack[top]);
34        top--;
35      }
36  }
37
38  void
39  Disp ()
40  {
41    int i;
42    for (i = top; i >= 0; i--)
43      {
44        printf ("\n%s", stack[i]);
45      }
46    printf ("\n");
47  }
48
49  void
50  main ()
51  {
52    int n, i, j;
53    char value[200];
54    printf ("ENTER TOTAL NUMBER OF STUDENTS : ");
55    scanf ("%d", &n);
56    printf ("ENTER THE REGISTRATION NUMBERS\n");
57    for (i = 0; i < n; i++)
58      {
59        int flag = 1;
60        scanf ("%s", value);
```

```
58      {
59        int flag = 1;
60        scanf ("%s", value);
61        if (top != -1)
62      {
63        int t = top;
64        for (j = 0; j <= t; j++)
65          {
66            if (strcmp (value, stack[j]) == 0)
67          {
68            flag = 0;
69            printf ("\nNumber already Exists\n");
70            i--;
71            break;
72          }
73          }
74        if (flag == 0)
75          continue;
76        Push (value);
77      }
78        else
79      {
80        Push (value);
81      }
82      }
83
84    int m;
85    printf ("\nENTER NUMBER OF RECORDS NEEDED\n");
86    scanf ("%d", &m);
87    int t = top;
88    for (i = top; i >= m; i--)
89      {
```

```
87    int t = top;
88    for (i = top; i >= m; i--)
89      {
90        Pop ();
91      }
92    printf ("\nFIRST %d NUMBERS ARE : ", m);
93    t = top;
94    Disp ();
95    getch ();
96  }
```

OUTPUT

```
ENTER TOTAL NUMBER OF STUDENTS : 15
ENTER THE REGISTRATION NUMBERS
17BIT0001
17BIT0002
17BIT0003
17BIT0004
17BIT0005
17BIT0006
17BIT0007
17BIT0008
17BIT0009
17BIT0010
17BIT0011
17BIT0012
17BIT0013
17BIT0014
17BIT0015

ENTER NUMBER OF RECORDS NEEDED
10
17BIT0015 is deleted!!
17BIT0014 is deleted!!
17BIT0013 is deleted!!
17BIT0012 is deleted!!
17BIT0011 is deleted!!

FIRST 10 NUMBERS ARE :
17BIT0010
17BIT0009
17BIT0008
17BIT0007
```

```
FIRST 10 NUMBERS ARE :
17BIT0010
17BIT0009
17BIT0008
17BIT0007
17BIT0006
17BIT0005
17BIT0004
17BIT0003
17BIT0002
17BIT0001


...Program finished with exit code 0
Press ENTER to exit console.
```