20BCS042 MOHD ADIL

PROGRAM 6.a

```
#include <stdio.h>
#include <stdlib.h>
int size, top = -1;
int *stack;
void push()
{
   if (top >= size - 1)
      printf("Stack Overflow\n");
   else
   {
      printf("Enter Element->");
      int num;
      scanf("%d", &num);
      stack[++top] = num;
   }
}
void pop()
{
   if (top < 0)
      printf("Stack underflow\n");
   else
      printf("Popped element is->%d\n", stack[top--]);
}
void display()
{
   if (top >= 0)
   {
      printf("Elements are:");
      for (int i = 0; i <= top; i++)
         printf(" %d", stack[i]);
```

```
        printf("\n");
    }
    else
        printf("Stack is Empty\n");
}
int isEmpty()
{
    if (top == -1)
    {
        printf("Stack is Empty!!\n");
        return 1;
    }
    else
    {
        printf("No!\n");
        return 0;
    }
}
int isFull()
{
    if (top == size - 1)
    {
        printf("Stack is Full!!\n");
        return 1;
    }
    else
        printf("No!\n");
        return 0;
}
int main()
{
    int choice;
    printf("Input Max-size->");
```

```
scanf("%d", &size);
stack = (int *)malloc(size * sizeof(int));
printf("\n1.Push element\n");
printf("2.Pop element\n");
printf("3.Display elements\n");
printf("4.Stack is empty?\n");
printf("5.Stack is full?\n");
printf("6.Total elements\n");
printf("7.Exit\n");
while (1)
{
   printf("Enter the choice: ");
   scanf("%d", &choice);
   switch (choice)
   {
   case 1:
      push();
      break;
   case 2:
      pop();
      break;
   case 3:
      display();
      break;
   case 4:
      isEmpty();
      break;
   case 5:
      isFull();
      break;
   case 6:
      printf("Total number of elements->%d\n", top+1);
      break;
```

```
        case 7:
            printf("Exiting...");
            exit(0);
            break;
        }
    }

    return 0;
}
```

OUTPUT:

```
PS C:\Users\aadil\Desktop\CSE\dsalab> cd "c:\Users\aadil\Desktop\CSE\dsalab\" ; if ($?) { gcc program6a.c -o program6a }
Input Max-size->5

1.Push element
2.Pop element
3.Display elements
4.Stack is empty?
5.Stack is full?
6.Total elements
7.Exit
Enter the choice: 1
Enter Element->1
Enter the choice: 1
Enter Element->2
Enter the choice: 1
Enter Element->3
Enter the choice: 1
Enter Element->4
Enter the choice: 1
Enter Element->5
Enter the choice: 3
Elements are: 1 2 3 4 5
Enter the choice: 2
Popped element is->5
Enter the choice: 3
Elements are: 1 2 3 4
Enter the choice: 4
No!
Enter the choice: 5
No!
Enter the choice: 6
Total number of elements->4
Enter the choice: 7
Exiting...
PS C:\Users\aadil\Desktop\CSE\dsalab>
```