DSA Assignment

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Programs on Stack

1. Write a menu-driven program to perform the following operations (in the form of functions) on a data structure Stack.

a. Create an empty stack that can accommodate integer

b. Insert an element into the stack

c. Delete an element from the stack

d. Display the content of the stack with an indication of the top element.

solution:

```
#include<stdio.h>
#define SIZE 20
int STACK[SIZE],TOP,n,MAXSTACK=SIZE-1;
void create();
void insert();
void delete();
void display();
int main()
```

```c
{
    int choice;
    TOP=-1;
    printf("\n Enter the size of STACK:");
    scanf("%d",&n);

 do
{
    int choice;
    printf("Enter your choice");
    scanf("%d",&choice);
 switch(choice)
 {
    case 1:
    {
       create();
       break;
    }
    case 2:
    {
       insert();
       break;
    }
    case 3:
    {
       delete();
       break;
    }
    case 4:
```

```c
        {
            display();
            break;
        }
        case 5:
        {
            printf("out of your choice");
        }
        default:
        {
            printf("Not found");
        }
    }
}
while(choice!=5);


}
void create()
{
    int k;
    TOP=-1;
}
void insert()
{
    int k;
    if(TOP>=MAXSTACK)
    {
        printf("stack was overflowing");
    }
```

```c
    else
    {
        printf("enter an element to insert in it\n");
        scanf("%d",&k);
        TOP=TOP+1;
        STACK[TOP]=k;
    }
}
void delete()
{
    int k;
    if(TOP==-1)
    {
        printf("stack was underflowing");
    }
    else
    {
        k=STACK[TOP];
        TOP=TOP-1;
        printf("the deleted element which must be deleted: %d\n",k);
    }
}
void display()
{
    int k;
    if(TOP==-1)
    {
        printf("stack was empty");
```

```
   }
   else
   {
      printf("stack elements are \n");
      for(k=TOP;k>=0;k--)
      {
         printf("%d",STACK[k]);
      }

   }
}
```

OUTPUT :

Enter the size of STACK:3

Enter your choice2

enter an element to insert in it

23

Enter your choice2

enter an element to insert in it

234

Enter your choice3

the deleted element which must be deleted: 234

Enter your choice4

stack elements are 23

Enter your choice5

out of your choice not found