Stacks

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Q. Menu Driven program for push, pop, peek, display and exit
Code –

```
#include <stdio.h>

#include <stdlib.h>

#define MAX 5

int stack[MAX];

int top = -1;

void push(){

 if (top == MAX - 1){

  printf("Stack overflow\n");

 }else{

  int number;

  printf("Enter the number to be pushed: ");

  scanf("%d", &number);

  top++;

  stack[top] = number;

  printf("%d is the pushed element\n", number);

 }

}

void pop(){

 if (top == -1){

  printf("Stack underflow\n");

 }else{
```

```
    printf("%d is the popped element\n", stack[top]);
    top--;
    }
}
void peek(){
  if (top == -1){
    printf("Stack is empty\n");
  }else{
  printf("%d is the top element\n", stack[top]);
  }
}
void display(){
  int i;
  if (top == -1){
    printf("Stack is empty\n");
  }else{
    printf("The elements in the stack are: ");
    for(i = top; i >= 0; i--){
      printf("%d ", stack[i]);
    }
    printf("\n");
  }
}
int main() {
  int choice;
  do{
    printf("1 - Push\n");
```

```
  printf("2 - Pop\n");
  printf("3 - Peek\n");
  printf("4 - Display\n");
  printf("5 - Exit\n");
  printf("Enter choice: ");
  scanf("%d", &choice);
  switch(choice){
    case 1:
      push();
      break;
    case 2:
      pop();
      break;
    case 3:
      peek();
      break;
    case 4:
      display();
      break;
    case 5:
      printf("Exiting program\n");
      break;
    default:
      printf("Incorrect choice\n");
  }
} while (choice != 5);
return 0;
```

}

Output –

```
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 1
Enter the number to be pushed: 21
21 is the pushed element
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 1
Enter the number to be pushed: 43
43 is the pushed element
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 1
Enter the number to be pushed: 67
67 is the pushed element
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 1
Enter the number to be pushed: 687
687 is the pushed element
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 1
Enter the number to be pushed: 23
23 is the pushed element
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 1
```

```
Stack overflow
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 43
Incorrect choice
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 54
Incorrect choice
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 4
The elements in the stack are: 23 687 67 43 21
1 - Push
2 - Pop
3 - Peek
4 - Display
5 - Exit
Enter choice: 5
Exiting program
```