

WEEK - 1

i] write a program to simulate the working of stack using arrays with
stack operations a] push b] pop c] display d] peek.

```
#include <stdio.h>
#include <conio.h>
#define SIZE 10
void push(int);
void pop();
void display();
void peek();

int stack[SIZE], top=-1;

void main()
{
    int value, choice;
    clrscr();
    while(1)
    {
        printf("Enter the choice\n 1. push\n 2. pop\n 3. peek\n 4. display\n 5. Exit");
        scanf("%d", &choice);
        switch(choice)
        {
            case 1: printf("Enter the value to be inserted: ");
                      scanf("%d", &value);
                      push(value);
                      break;
            case 2: pop();
                      break;
            case 3: peek();
                      break;
            case 4: display();
                      break;
            case 5: exit(0);
            default: printf("Invalid choice");
        }
    }
}
```

```
void push(int value) {
    if (top == SIZE - 1)
        printf ("\n STACK OVERFLOW");
    else
    {
        top++;
        stack[top] = value;
        printf ("");
    }
}

void pop() {
    if (top == -1)
        printf (" STACK UNDERFLOW");
    else
    {
        top--;
        printf ("pop operation is complete");
    }
}

void peek() {
    if (top >= 0)
    {
        (Peeked value is %d)
        printf ("%d", stack[top]);
        printf (" peeked=%d\n", stack[top]);
    }
    else
        printf (" stack underflow");
}

void display()
{
    if (top == -1)
        printf (" STACK UNDERFLOW");
    else
    {
        int i;
        printf (" stack elements are:\n");
        for (i = top; i >= 0; i--)
            printf ("%d\n", stack[i]);
    }
}
```

Output

Enter the choice

1. push
2. pop
3. peek
4. display
5. exit

1
Enter the value to be inserted: 2

value inserted
Enter the choice

1. push
2. pop
3. peek
4. display
5. exit

1
Enter the value to be inserted 3

value inserted
Enter the choice

1. push
2. pop
3. peek
4. display
5. exit

3
peeked value is 3

Enter the choice

1. push
2. pop
3. peek
4. display
5. exit

4

stack elements are :

3

2

Enter the choice

1. push
2. pop
3. peek
4. display
5. exit

2
pop operation is complete

Enter the choice

1. push
2. pop
3. peek
4. display
5. exit

2
pop operation is complete

Enter the choice

1. push
2. pop
3. peek
4. display
5. exit

2

Stack Underflow

new file