Aim:- Write a program to implement the concept of Stack with push, pop, display and Exit operations.

Software used:- VS Code, GCC.

Hardware used:- Intel i3-6006u

Theory:- Stack:- Stack is a linear data structure that follows a particular order in which the operations are performed The order may be LIFO (Last in First Out) or FILO (First in Last Out). It implies that the element inserted at the last comes out first. There are many real-life examples Consider an example of plates stacked over one another. The plate at the top is the first one to get removed.

Primary Stack Operations:-

push (data): When this operation is called, an element is inserted at the top of the stack

pop(): When this operation is called, the element at the top is poped out.

Auxillary Stack Operations:-

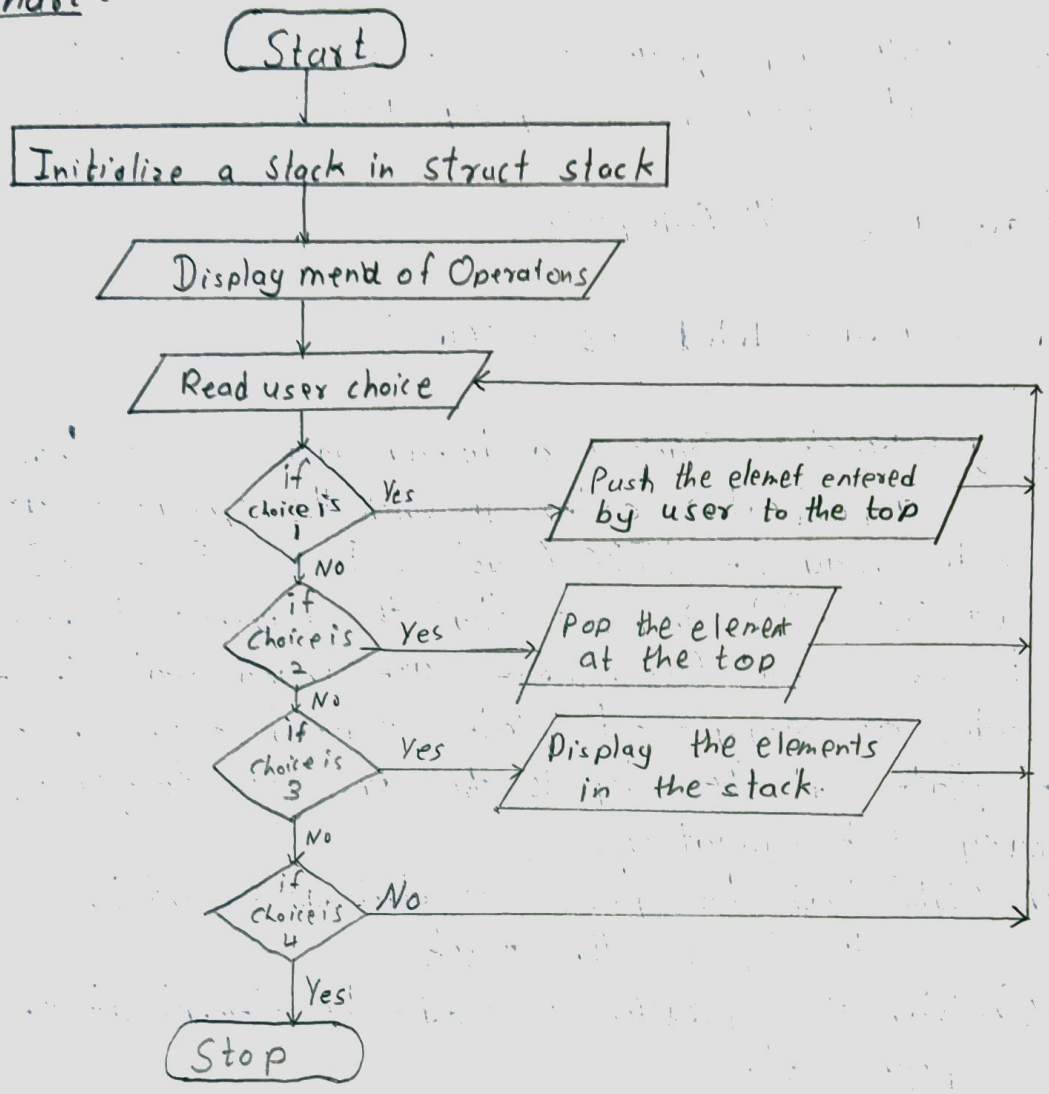
isEmpty(): This operations, tells weather the stack is empty or not.

isFull(): This operation, tells weather a stack is full or not

Application of Stack:-

1) The current state of function can be pushed to a stack, and when the function returns, the state is poped and resumed

Flowchart :-


Start
Initialize a stack in struct stack
Display menu of Operations
Read user choice
if choice is 1
Yes
Push the elenet entered by user to the top
No
if Choice is 2
Yes
Pop the elenet at the top
No
if choice is 3
Yes
Display the elements in the stack
No
if choice is 4
No
Yes
Stop

2) Undo / Redo : The last made change can be pushed to a stack
3) Browser History : The last visited site is pushed t a stack.
4) Backtracking Algoriths : To keep track of what operations are performed.

Advantages of Stack :
1) Easy to implement
2) Efficient memory utilization
3) Fast access time.

Disadvantages of Stack
1) It has a limited capacity.
2) We cannot access it randomly.
3) Can't access data in middle of stack.