Name: Atharva Salitri **Div: CSAI-B** **Batch: 2** **Roll No.: 37**

Stack using Array

```
#include<stdio.h>
#include<stdlib.h>
#define MAX 50
int stack[MAX];
int top = -1;
void push (int value){
   if (top == MAX -1)
      printf("Stack is Full\n");
   else{
      stack[++top] = value;
      printf("%d is pushed\n", value); }
}
int pop(){
   if (top == -1){
      printf("Stack is Empty\n");
      return -1; }
   else
      return stack[top--];
}
int main(){
   int choice, value;
   while(1){
      printf("1. Push\n2. Pop\n3. Exit\n");
      printf("Enter your choice: ");
      scanf("%d", &choice);
      switch (choice){
         case 1:
            printf("Enter Value: \n");
            scanf("%d", &value);
            push(value);
            break;
         case 2:
            value = pop();
            if (value != -1)
               printf("%d popped from stack\n", value);
            break;
         case 3:
            exit(0);
         default:
            printf("Invalid choice\n");
      }
   }
}
```

```
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\5. Stack>
1. Push 2. Pop  3. Exit
Enter your choice: 1
Enter Value: 45
45 is pushed
1. Push 2. Pop  3. Exit
Enter your choice: 2
45 popped from stack
1. Push 2. Pop  3. Exit
Enter your choice: 2
Stack is Empty
1. Push 2. Pop  3. Exit
Enter your choice:
```

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Stack using LinkedList

```
#include<stdio.h>
#include<stdlib.h>
struct Node{
   int data;
   struct Node* next;
};
struct Node* top = NULL;
void push(int value){
   struct Node* newNode = (struct Node*)malloc
(sizeof(struct Node));
   newNode->data = value;
   newNode->next = top;
   top = newNode;
   printf("%d is pushed\n", value);
}
int pop(){
   if(top == NULL){
      printf("Stack is empty\n");
      return -1;
   } else{
      struct Node* temp = top;
      int popped = temp->data;
      top = top->next;
      free(temp);
      return popped;
   }
}
int main() {
   int choice, value;
   while (1) {
      printf("1. Push\t2. Pop\t3. Exit\n");
      printf("Enter your choice: ");
      scanf("%d", &choice);
      switch (choice) {
         case 1:
            printf("Enter value to push: ");
            scanf("%d", &value);
            push(value);
            break;
         case 2:
            value = pop();
            if (value != -1) {
               printf("%d popped from stack\n", value);
            }
            break;
         case 3:
            exit(0);
         default:
            printf("Invalid choice\n");
      }
   }
```

```
PS E:\VIT PUNE '27\S.Y\ADS\ADS Lab\5. Stack>
 }
1. Push 2. Pop  3. Exit
Enter your choice: 1
Enter value to push: 34
34 is pushed
1. Push 2. Pop  3. Exit
Enter your choice: 2
34 popped from stack
1. Push 2. Pop  3. Exit
Enter your choice: 2
Stack is empty
1. Push 2. Pop  3. Exit
```