

Lab program-1

Date: 18-12-23

1) Write a program to simulate working of stack using array with the following operations :-
[a] push [b] pop [c] Display.

```
#include <stdio.h>
```

```
int top = -1;
```

```
int main() {
```

```
int stack[5];
```

```
int operations();
```

```
int choice;
```

```
int value;
```

```
printf("Enter your choice (1-push, 2-pop, 3-display):");
```

```
scanf("%d", &choice);
```

```
switch(choice) {
```

```
case 1: push(stack, value);
```

```
operations();
```

```
break;
```

```
case 2: pop(stack);
```

```
operations();
```

```
break;
```

```
case 3: display(stack);
```

```
operations();
```

```
break;
```

```
return 0;
```

```
}
```

```
}
```

~~void~~ operations();

return 0;

int push(int arr[], int value) {

if (top > 4) {

printf("stack overflow\n");

else {

printf("Enter the value to be inserted: ");

scanf("%d", &value);

++top;

arr[top] = value;

printf("inserted element: %d\n", arr[top]);

}

return 0;

}

int pop(int arr[]) {

if (top == -1) {

printf("stack is Empty");

else {

printf("deleted item: %d\n", arr[top]);

top--;

}

return 0;

}

```

int display (int arr [10]) {
    for (int i = top; i >= 0; i--) {
        printf ("The Elements in the Stack are: %d \n",
                arr[i]);
    }
    return 0;
}

```

Output:-

Enter your choice (1- push, 2- pop, 3- display): 1
 Enter the value to be inserted: 2
 inserted element: 2

Enter your choice (1- push, 2- pop, 3- display): 1
 Enter the value to be inserted: 3
 inserted element: 3

Enter your choice (1- push, 2- pop, 3- display): 1
 Enter the value to be inserted: 4
 inserted element: 4

Enter your choice (1- push, 2- pop, 3- display): 2
 Enter the value to be inserted: 5
 inserted element: 5

Enter your choice (1- push, 2- pop, 3- display): 2
 deleted item: 5

Enter your choice (1- push, 2- pop, 3- display): 2
 deleted item: 4

Enter your choice (1-push, 2-pop, 3-display): 3

the elements in the stack are : 3

the elements in the stack are : 2

Enter your choice (1-push, 2-pop, 3-display): 2

deleted item : 3

Enter your choice (1-push, 2-pop, 3-display): 2

deleted item : 2

Enter your choice (1-push, 2-pop, 3-display): 2

stack is empty.

Enter your choice (1-push, 2-pop, 3-display): 1

Enter the value to be inserted : 6

inserted element : 6

Enter your choice (1-push, 2-pop, 3-display): 1

Enter the value to be inserted : 7

inserted element : 7

Enter your choice (1-push, 2-pop, 3-display): 2

Enter the value to be inserted : 8

inserted element : 8

Enter your choice (1-push, 2-pop, 3-display): 2

Enter the value to be inserted : 9

inserted element : 9

Enter your choice (1- push, 2- pop, 3- display) : 1
Enter the value to be inserted: 10
inserted element: 10
Enter your choice (1- push, 2- pop, 3- display) : 1
Enter the value to be inserted: 11
inserted element: 11
Enter your choice (1- push, 2- pop, 3- display) : 1
stack overflow.

Q
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