PPS Lab Activity

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Problem Statement:

IMPLEMENTATION OF STACK USING ARRAY

A stack is a linear data structure in which the insertion of a new element and removal of an existing element takes place at the same end represented as the top of the stack. This strategy states that the element that is inserted last will come out first. You can take a pile of plates kept on top of each other as a real-life example. The plate which we put last is on the top and since we remove the plate that is at the top, we can say that the plate that was put last comes out first.
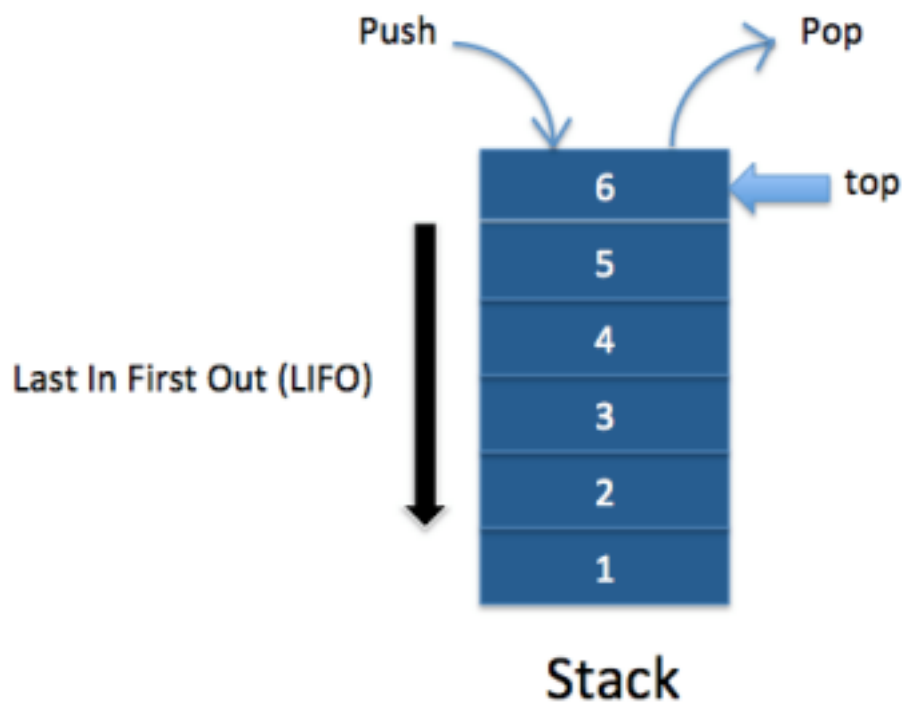
SOURCE CODE:

```
#include<stdio.h>

int stack[100],choice,n,top,x,i;

void push(void);

void pop(void);

void display(void);
```

```c
int main()
{
    top=-1;
    printf("\n Enter the size of STACK[MAX=100]:");
    scanf("%d",&n);
    printf("\n\t STACK OPERATIONS USING ARRAY");
    printf("\n\t-------------------------------");
    printf("\n\t 1.PUSH\n\t 2.POP\n\t 3.DISPLAY\n\t 4.EXIT");

    do
    {
        printf("\n Enter the Choice:");
        scanf("%d",&choice);
        switch(choice)
        {
            case 1:
            {
                push();
                break;
            }
            case 2:
            {
                pop();
```

```c
            break;

        }

        case 3:

        {

            display();

            break;

        }

        case 4:

        {

            printf("\n\t EXIT POINT ");

            break;

        }

        default:

        {

            printf ("\n\t Please Enter a Valid Choice(1/2/3/4)");

        }

    }
}
while(choice!=4);
    return 0;
}
void push()
{
```

```c
    if(top>=n-1)

    {

        printf("\n\tSTACK is over flow");


    }

    else

    {

        printf(" Enter a value to be pushed:");

        scanf("%d",&x);

        top++;

        stack[top]=x;

    }

}

void pop()

{

    if(top<=-1)

    {

        printf("\n\t Stack is under flow");

    }

    else

    {

        printf("\n\t The popped elements is %d",stack[top]);

        top--;

    }
```

```c
}
void display()
{
   if(top>=0)
   {
       printf("\n The elements in STACK \n");
       for(i=top; i>=0; i--)
           printf("\n%d",stack[i]);
       printf("\n Press Next Choice");
   }
   else
   {
       printf("\n The STACK is empty");
   }
}
```

OUTPUT:

Enter the size of STACK[MAX=100]:10

STACK OPERATIONS USING ARRAY

                1.PUSH

                2.POP

                3.DISPLAY

                4.EXIT

 Enter the Choice:1

 Enter a value to be pushed:12

Enter the Choice:1

Enter a value to be pushed:24

Enter the Choice:1

Enter a value to be pushed:98

Enter the Choice:3

The elements in STACK

98

24

12

Press Next Choice

Enter the Choice:2

The popped elements is 98

Enter the Choice:3

The elements in STACK

24

12

Press Next Choice

Enter the Choice:4

EXIT POINT