

EXPERIMENT 1

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#include <stdio.h>
int STK[100], TOP = -1, i, n, x, choice;
void Push();
void Pop();
void Peep();
void Display();

void main()
{
    printf("\t WELCOME to Implementation of STACK using array !! \n");
    printf("Enter the size of Stack (Maximum size = 100): ");
    scanf("%d", &n);

    do
    {
        printf("\n Stack Operation available: \n");
        printf("\t1.Push\t 2.Pop\t 3.Peep\t 4.Display\t 5.Exit \n");
        printf("\n Enter your choice: ");
        scanf("%d", &choice);
        switch (choice)
        {
            case 1:
                Push();
                break;
            case 2:
                Pop();
                break;
            case 3:
                Peep();
                break;
            case 4:
                Display();
                break;
            case 5:
                printf("Exit: Program Finished !! ");
                break;
            default:
                printf("Please enter a valid choide: 1, 2, 3, 4, 5 \n");
        }
    } while (choice != 5);
}

// Function to perform PUSH Operation
void Push()
{
    if (TOP >= n - 1)
    {
        printf(" Stack Overflow \n");
    }
    else
    {
        printf(" Enter the element to be pushed: ");
        scanf("%d", &x);
        TOP++;
        STK[TOP] = x;
    }
}

// Function to perform POP Operation
void Pop()
{
    if (TOP < 0)
    {
        printf(" Stack Underflow \n");
    }
}
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        else
        {
            printf(" The popped element is: %d \n", STK[TOP]);
            TOP--;
        }
    }

// Function to perform PEEP Opeartion
void Peep()
{
    printf(" Enter the position of the element from the top which you want to peep:
");
    scanf("%d", &i);
    if (TOP - i + 1 < 0)
    {
        printf(" Stack Underflow on Peep \n");
    }
    else
    {
        printf(" The %d element from the top is: %d \n", i, STK[TOP - i + 1]);
    }
}

// Function to DISPLAY the Stack
void Display()
{
    if (TOP < 0)
    {
        printf(" Stack is empty \n");
    }
    else
    {
        printf(" The element in the stack are:");
        for (i = TOP; i > -1; i--)
        {
            printf("\n %d \n", STK[i]);
        }
    }
}

```

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WELCOME to Implementation of STACK using array !!
Enter the size of Stack (Maximum size = 100): 5

Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 1
Enter the element to be pushed: 1

Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 1
Enter the element to be pushed: 2

Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 1
Enter the element to be pushed: 3

Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 1
Enter the element to be pushed: 4

Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 1
Enter the element to be pushed: 5

```

Stack Operation available:

1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 4

The element in the stack are:

5

4

3

2

1

Stack Operation available:

1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 3

Enter the position of the element from the top which you want to peep: 1

The 1 element from the top is: 5

Stack Operation available:

1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 2

The popped element is: 5

Stack Operation available:

1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 4

The element in the stack are:

4

3

2

1

Stack Operation available:

1.Push 2.Pop 3.Peep 4.Display 5.Exit

Enter your choice: 5