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/* Implemention of stack using array*/
#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 choice :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: ");
```

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      scanf("%d", &x);
      TOP++;
      STK[TOP] = x;

   }
}
// Function to perform POP operation
void pop()
{
   if (TOP<0)
   {
      printf(" Stack underflow \n");
   }
   else
   {
      printf(" The popped element is: %d \n", STK[TOP]);
      TOP--;
   }
}
// Function to perform peep operation
void peep()
{
   printf(" Enter the position of the TOP which u 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 diplay 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]);
        }
    }
}
```

```
itl4@22DL407:~$ gcc push.c
itl4@22DL407:~$ ./a.out
         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: 10

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

 Enter your choice: 2
 The popped element is: 10

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

 Enter your choice: 3
 Enter the position of the TOP which u want to peep:4
 Stack underflow on peep

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

 Enter your choice: 5
itl4@22DL407:~$
```