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Batch : SY IT
Roll No: 63

EXPERIMENT NO 1:

CODE :

```
/***********************************
 Implementation of Stack Using Array
***********************************/

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

OUTPUT :

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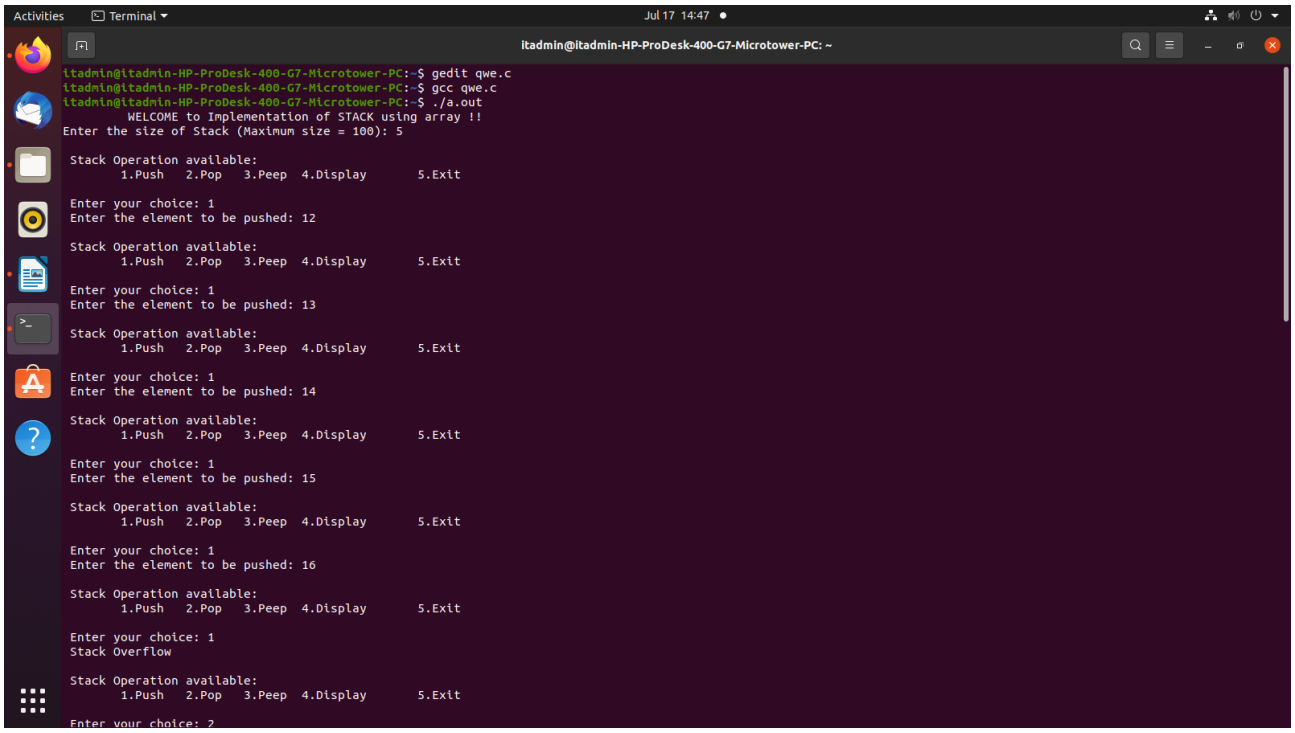
Activities
Terminal
Jul 17 14:47
itadmin@itadmin-HP-ProDesk-400-G7-Microtower-PC: ~
itadmin@itadmin-HP-ProDesk-400-G7-Microtower-PC:~$ gedit qwe.c
itadmin@itadmin-HP-ProDesk-400-G7-Microtower-PC:~$ gcc qwe.c
itadmin@itadmin-HP-ProDesk-400-G7-Microtower-PC:~$ ./a.out
WELCOME to Implementation of STACK 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: 12
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 1
Enter the element to be pushed: 13
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 1
Enter the element to be pushed: 14
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 1
Enter the element to be pushed: 15
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 1
Enter the element to be pushed: 16
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 1
Stack Overflow
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2

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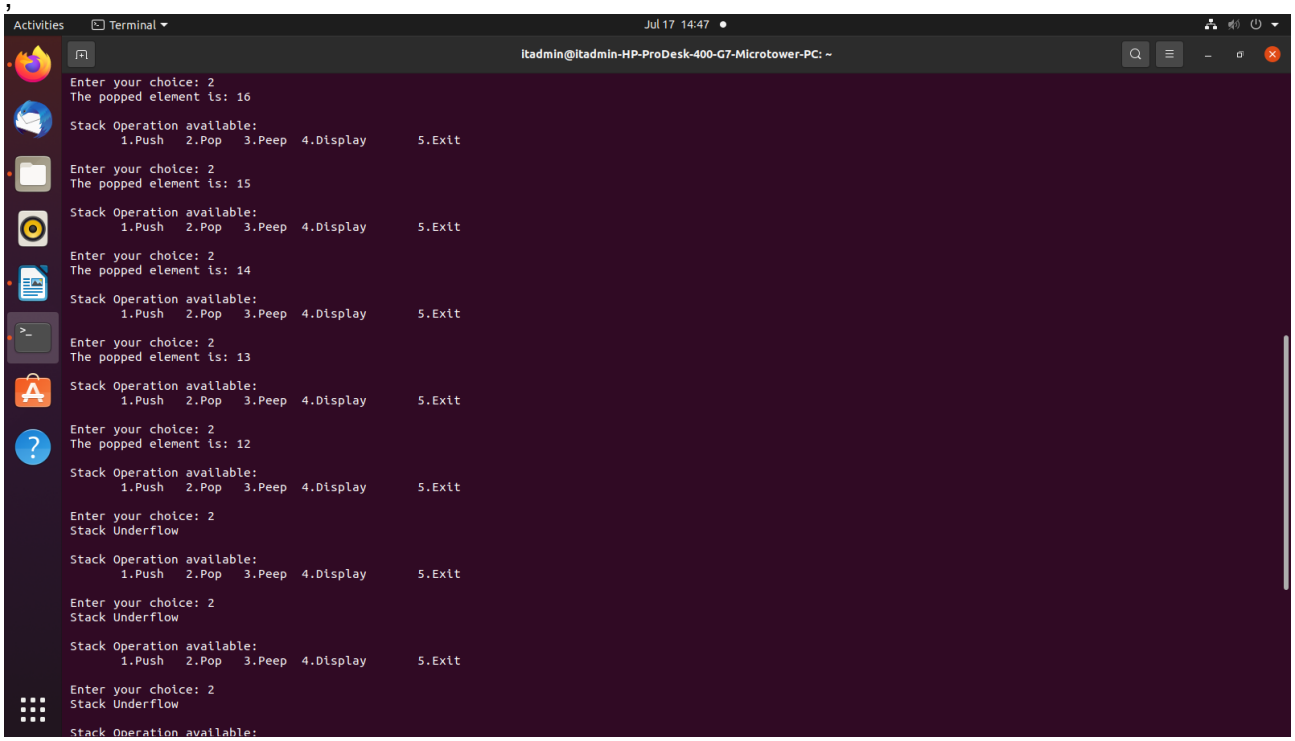
Activities
Terminal
Jul 17 14:47
itadmin@itadmin-HP-ProDesk-400-G7-Microtower-PC: ~
Enter your choice: 2
The popped element is: 16
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
The popped element is: 15
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
The popped element is: 14
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
The popped element is: 13
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
The popped element is: 12
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
Stack Underflow
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
Stack Underflow
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
Stack Underflow
Stack Operation available:

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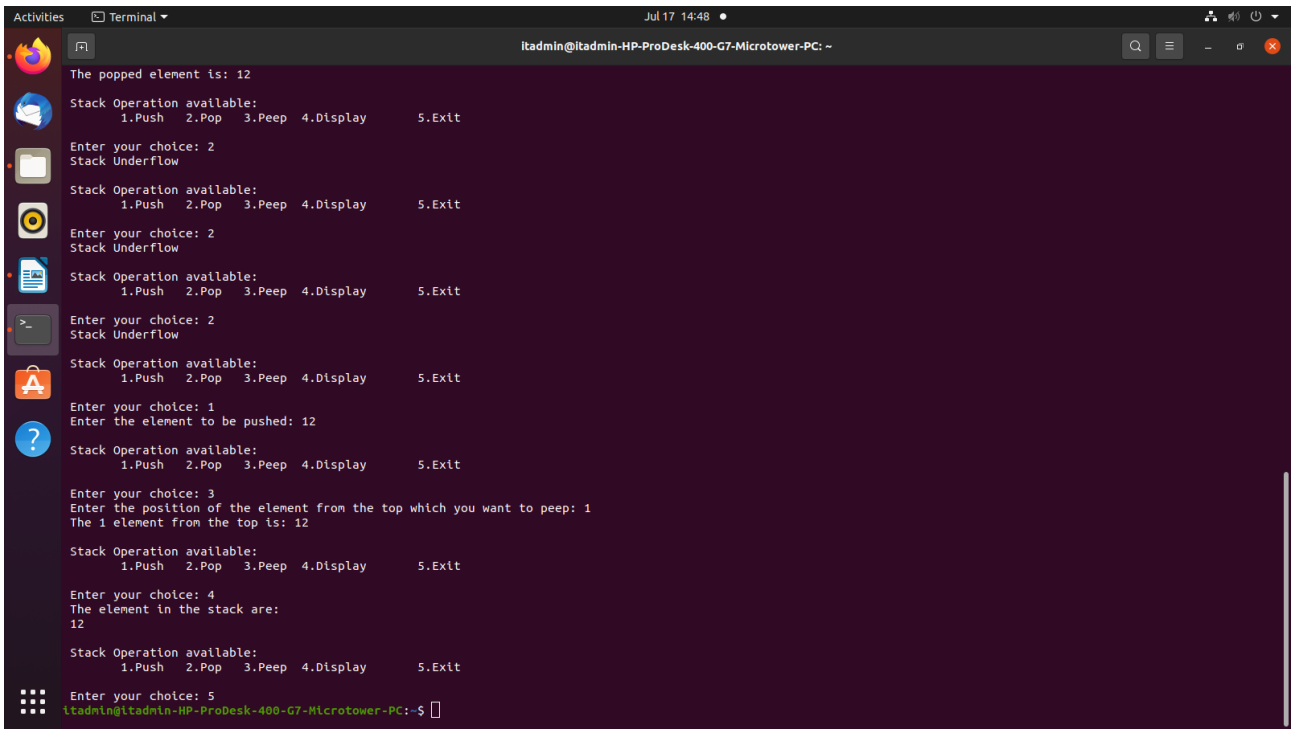
Activities
Terminal
Jul 17 14:48
itadmin@itadmin-HP-ProDesk-400-G7-Microtower-PC: ~
The popped element is: 12
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
Stack Underflow
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
Stack Underflow
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 2
Stack Underflow
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 1
Enter the element to be pushed: 12
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: 12
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 4
The element in the stack are:
12
Stack Operation available:
1.Push 2.Pop 3.Peep 4.Display 5.Exit
Enter your choice: 5
itadmin@itadmin-HP-ProDesk-400-G7-Microtower-PC:~$