Lab Program 1 :

WAP to simulate the working of stack using an array with the following A: PUSH, B: POP & display. The program should print appropriate

```
#include<stdio.h>
#include<process.h>
#include<conio.h>
#define STACK_SIZE 5
int top=-1;
int s[10];
int item;
void push()
{ if(top==STACK_SIZE-1)
  { printf("stack overflow\n");
    return;
  }
  top=top+1;
  s[top]=item;
}
int pop()
{ if(top==-1) return -1;
  return s[top--];
}
void display()
{ int i;
  if(top==-1)
  { printf("stack is empty\n");
  return;
}
  printf("contents of the stack\n");
```

```
for(i=top; i>=0; i--)
{
  printf("%d\n", s[i]);
}
}
int main()
{ int item_deleted;
char choice;
  clrscr();
  for(;;)
{ printf("\n A: push \n B: pop \n C: display \n D: exit");
  printf("enter the choice \n");
  scanf("%c", &choice);
  switch(choice)
{ case 'A':
  case 'A': printf("enter the item to be inserted \n");
  scanf("%d", &item);
  push()
  break;
case 'B': item_deleted=pop(); (-1)
  if(item_deleted == -1)
  printf("stack is empty\n");
  else
  printf("item deleted is %d\n", item_deleted);
  break;
case 'C': display();
  break;
  default: exit(0);
}
}
getch();
}
```

C:\Users\sohan\Desktop\C Programs\Data Structures Lab\LP 1\push and pop.cpp - Dev-C++ 5.11

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(globals)

push and pop.cpp

```
1  #include<stdio.h>
2  #include<process.h>
3  #include<conio.h>
4  #define STACK_SIZE 5
5  int top=-1;
6  int s[10];
7  int item;
8  void push ()
9  {
10     if(top==STACK_SIZE-1){printf("stack overflow\n");
11     return;
12     }
13     top=top+1;
14     s[top]=item;
15 }
16 int pop()
17 { if(top==-1)return -1;
18 return s[top--];
19 }
20 void display()
21 { int i;
22 if(top==-1)
23 {printf(" Stack is empty \n");
24 return;
25 }
26 printf("contents of the stack\n");
27 for(i=top;i>=0;i--)
28 { printf("%d\n",s[i]);
29 }
30 }
31 int main()
32 {
33     int item_deleted;
34     int choice;
35     system("cls");
36 for(;;)
37     {
38         printf("\n 1:Push\n 2:Pop\n 3:Display\n 4:Exit\n");
```

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TDM-GCC 4.9.2 64-bit Release

(globals)

push and pop.cpp

```
25  }
26  printf("contents of the stack\n");
27  for(i=top;i>=0;i--)
28  { printf("%d\n",s[i]);
29  }
30  }
31  int main()
32  {
33      int item_deleted;
34      int choice;
35      system("cls");
36  for(;;)
37      {
38          printf("\n 1:Push\n 2:Pop\n 3:Display\n 4:Exit\n");
39          printf(" Enter the choice\n");
40          scanf("%d",&choice);
41          switch(choice)
42          {
43              case 1: printf("enter the item to be inserted \n");
44                      scanf("%d\n",&item);
45                      push();
46                      break;
47              case 2: item_deleted=pop(); (-1);
48                      if(item_deleted==-1)
49                      {printf("Stack is empty\n");
50                  }
51                      else
52                      printf("item deleted is %d\n",item_deleted);
53                      break;
54              case 3: display();
55                      break;
56              default: exit(0);
57          }
58      }
59      getch();
60  return 0;
61  }
```

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C:\Users\sohan\Desktop\C Programs\Data Structures Lab\LP 1\push and pop.exe

```
 1:Push
 2:Pop
 3:Display
 4:Exit
 Enter the choice
1
enter the item to be inserted
12
1

 1:Push
 2:Pop
 3:Display
 4:Exit
 Enter the choice
enter the item to be inserted
12
1

 1:Push
 2:Pop
 3:Display
 4:Exit
 Enter the choice
enter the item to be inserted
15
1

 1:Push
 2:Pop
 3:Display
 4:Exit
 Enter the choice
enter the item to be inserted
43
1

 1:Push
 2:Pop
 3:Display
 4:Exit
 Enter the choice
enter the item to be inserted
32
1

 1:Push
 2:Pop
 3:Display
```

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C:\Users\sohan\Desktop\C Programs\Data Structures Lab\LP 1\push and pop.exe

```
 1:Push
 2:Pop
 3:Display
 4:Exit
 Enter the choice
enter the item to be inserted
2

2
stack overflow

 1:Push
 2:Pop
 3:Display
 4:Exit
 Enter the choice
item deleted is 32

 1:Push
 2:Pop
 3:Display
 4:Exit
 Enter the choice
3
contents of the stack
43
15
12
12

 1:Push
 2:Pop
 3:Display
 4:Exit
 Enter the choice
4

--------------------------------
Process exited after 170.3 seconds with return value 0
Press any key to continue . . .
```