**17CS2011 Object Oriented Programming in C++ Lab**

18CS2007-Data Structures and Algorithms Lab

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| Ex. No:1.A | **STACK** |
| Date:08/08/2020 |
| **Aim:** To make an array representation of stack in C.  **Description:**  Perform  1.Push  2.Pop  3.Display  Under stack.  **Pseudocode:**  **1)PUSH**  **1.**Check whether stack is **full**.    **TOP=SIZE-1**  **2.**If stack is full, then display “**Stack is full”** and then terminate the loop.  **3.**If **not full**, increment the value of top by 1.  **TOP=TOP+1**  **4.**Assign a value to stack[top]  **STACK[TOP]=value**  **2)POP**  **1.**Check whether stack is empty  **TOP==-1**  **2.** If empty, display “**stack is empty, deletion is not possible”** and terminate.  **3.**If not empty, then define a variable and initialize it with top.  **4.**Display **stack[top].**  **5.**Decrement top by one.  **Top—**  **3)DISPLAY**  **1.**Check whether stack is empty  **TOP==-1**  **2.**If empty, display ”**stack is empty”** and terminate.  **3.**If not empty, initialize a variable and assign it to top and execute the loop until stack is equal to  Stop.  **4.**Display stack[i] and decrease the value of I by 1.  **Code:**  **Online GDB link:** <https://www.onlinegdb.com/fork/Syzb3-hWw>  #include<stdio.h>  int s[10],top = -1;  void push();  void pop();  void display();  void main()  {  int choice;  while(1)  {  printf("\n1.Push\n");  printf("2.Pop\n");  printf("3.Display\n");  printf("Enter your choice\t:");  scanf("%d",&choice);  switch(choice)  {  case 1:  printf("\nPush\n");  push();  break;  case 2:  printf("\nPOP");  pop();  break;  case 3:  printf("\nDisplay");  display();  break;  default:  printf("\nwrong choice\n");  }  }  }  void push()  {  int value;  if(top==9)  {  printf("Stack is full");    }  else{  printf("\nEnter the element to push:");  scanf("%d",&value);  top=top+1;  s[top]=value;  }  }  void pop( )  {  if(top==-1)  {  printf("\nStack is empty,deletion is not possible");  }  else{  printf("\ndeleted element is %d",s[top]);  top=top-1;  }  }  void display( )  {  int i;  if(top==-1)  {  printf("\nStack is empty");  }  else  {  printf("\nstack is..\n");  for(i=top;i>=0;--i)  printf("%d\n",s[i]);  }  }  **Sample Input:**    **Sample Output :**    **Result:** Thus the program to perform push ,pop and display is executed and verified successfully. | |