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Section – A

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Q) Write a menu driven program to implement PUSH, POP, PEEP operations in Stack using array.

Code –

```c
#include<stdio.h>
#include<stdlib.h>
#define MAX 10

int stack_arr[MAX];
int top = -1;

void push(int item);
int pop();
int peep();
int isEmpty();
int isFull();
void display();

int main()
{
        int choice,item;
        while(1)
        {
                printf("\n1.Push\n");
                printf("2.Pop\n");
                printf("3.Peep\n");
                printf("4.Display all stack elements\n");
                printf("5.Quit\n");
                printf("\nEnter your choice : ");
                scanf("%d",&choice);
                switch(choice)
                {
                case 1 :
                        printf("\nEnter the item to be pushed : ");
                        scanf("%d",&item);
                        push(item);
                        break;
                case 2:
                        item = pop();
                        printf("\nPopped item is : %d\n",item );
                        break;
                case 3:
                        peep();
                        break;
                case 4:
                        display();
                        break;
                case 5:
                        exit(1);
                default:
                        printf("\nWrong choice\n");
                }
        }

        return 0;
}

void push(int item)
{
        if( isFull() )
        {
                printf("\nStack Overflow\n");
                return;
        }
        top = top+1;
        stack_arr[top] = item;
}

int pop()
{
        int item;
        if( isEmpty() )
        {
                printf("\nStack Underflow\n");
                exit(1);
        }
```

```
        }
        item = stack_arr[top];
        top = top-1;
        return item;
}

int peep()
{
   int s;
   printf("\nEnter Position for search:->");
   scanf("%d",&s);
   if( isEmpty() )
    {
                printf("\nStack Underflow\n");
                exit(1);
    }
   if(s == MAX -1)
   {
      printf("\nThe Stack is Overflow...");
      exit(1);
   }
   else
   {
     printf("\nThe Element is:->%d",stack_arr[s-1]);
   }
}

int isEmpty()
{
        if( top == -1 )
                return 1;
        else
                return 0;
}

int isFull()
```

```
   }
   else
   {
     printf("\nThe Element is:->%d",stack_arr[s-1]);
   }
}

int isEmpty()
{
        if( top == -1 )
                return 1;
        else
                return 0;
}

int isFull()
{
        if( top == MAX-1 )
                return 1;
        else
                return 0;
}

void display()
{
        int i;
        if( isEmpty() )
        {
                printf("\nStack is empty\n");
                return;
        }
     printf("\nStack elements :\n\n");
        for(i=top;i>=0;i--)
                printf(" %d\n", stack_arr[i] );
        printf("\n");
}
```

P.T.O.

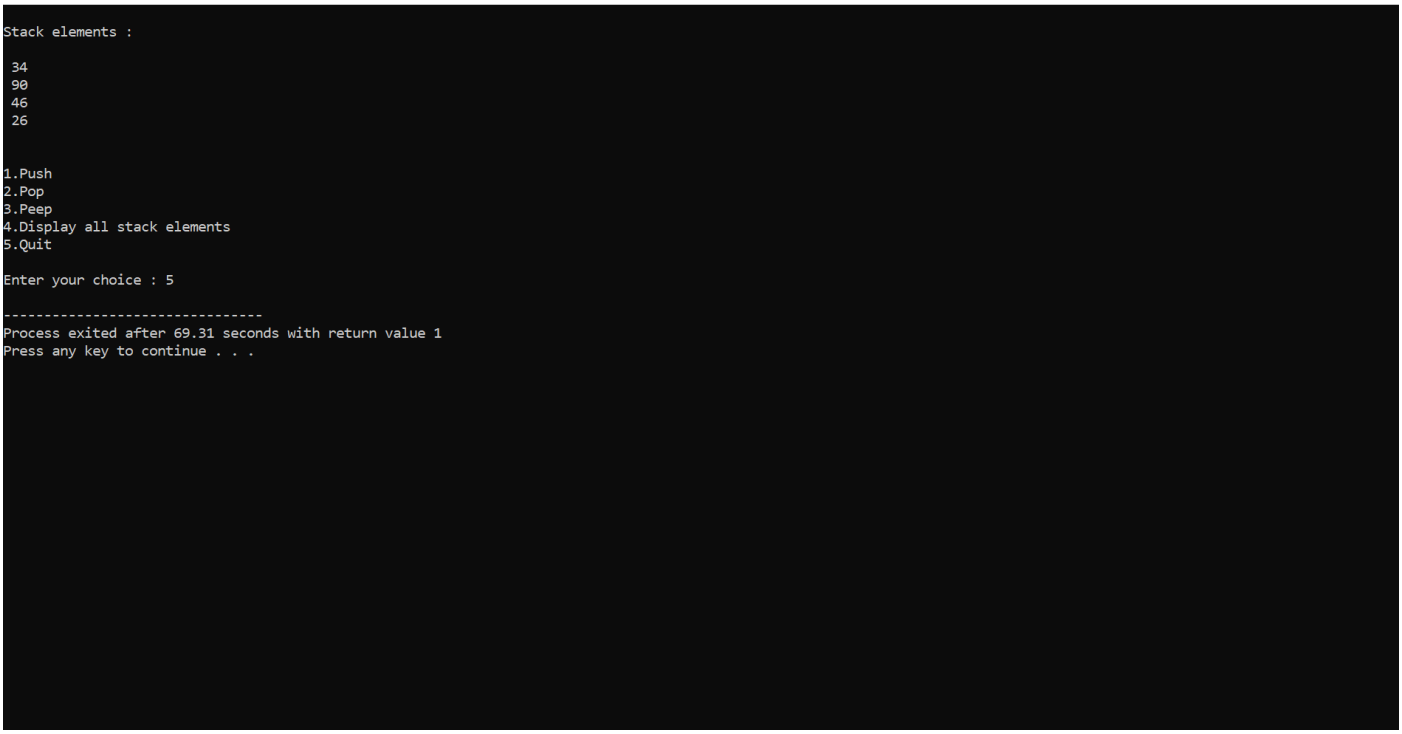
OUTPUT –

```
1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 1

Enter the item to be pushed : 26

1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 1

Enter the item to be pushed : 46

1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 1

Enter the item to be pushed : 90

1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 1

Enter the item to be pushed : 34
```

```
Enter your choice : 1

Enter the item to be pushed : 34

1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 1

Enter the item to be pushed : 67

1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 4

Stack elements :

 67
 34
 90
 46
 26


1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 2

Popped item is : 67
```

```
Enter your choice : 1

Enter the item to be pushed : 67

1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 4

Stack elements :

 67
 34
 90
 46
 26


1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 2

Popped item is : 67

1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 4

Stack elements :
```

```
Enter your choice : 4

Stack elements :

 34
 90
 46
 26


1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 3

Enter Position :->3

The Element is:->90
1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit

Enter your choice : 4

Stack elements :

 34
 90
 46
 26


1.Push
2.Pop
3.Peep
4.Display all stack elements
```


Stack elements :
34
90
46
26
1.Push
2.Pop
3.Peep
4.Display all stack elements
5.Quit
Enter your choice : 5
Process exited after 69.31 seconds with return value 1
Press any key to continue . . .

**********END**********