2023100000130

Code 1:

```
#include <stdio.h>
#include <stdlib.h>

#define SIZE 5

int top = -1, inp_array[SIZE];
void push();
void pop();
void show();
void sum();

int main()
{
   int choice;

   while (1)
   {
```

```
printf("\nPerform operations on the stack:");
printf("\n1.Push the element\n2.Pop the element\n3.Show\n4.Show the sum\n5.End");
printf("\n\nEnter the choice: ");
scanf("%d", &choice);

switch (choice)
{
case 1:
   push();
   break;
case 2:
   pop();
   break;
case 3:
   show();
   break;
case 4:
   sum();
case 5:
   exit(0);
```

```
        default:
            printf("\nInvalid choice!!");
        }
    }
}

void push()
{
    int x;

    if (top == SIZE - 1)
    {
        printf("\nOverflow!!");
    }
    else
    {
        printf("\nEnter the element to be added onto the stack: ");
        scanf("%d", &x);
        top = top + 1;
```

```
        inp_array[top] = x;
    }
}

void pop()
{
    if (top == -1)
    {
        printf("\nUnderflow!!");
    }
    else
    {
        printf("\nPopped element: %d", inp_array[top]);
        top = top - 1;
    }
}

void show()
{
    if (top == -1)
```

```
    {
        printf("\nUnderflow!!");
    }
    else
    {
        printf("\nElements present in the stack: \n");
        for (int i = top; i >= 0; --i)
            printf("%d\n", inp_array[i]);
    }
}
void sum()
{
    int sum = 0;
    for(int i = top; i >= 0; i--){
        sum = sum + inp_array[i];
    }
    printf("Sum of the element:%d\n", sum);
}
```

Terminal:

```
Perform operations on the stack:
1.Push the element
2.Pop the element
3.Show
4.Show the sum
5.End

Enter the choice: 1

Enter the element to be added onto the stack: 2

Perform operations on the stack:
1.Push the element
2.Pop the element
3.Show
4.Show the sum
5.End

Enter the choice: 1

Enter the element to be added onto the stack: 5

Perform operations on the stack:
1.Push the element
2.Pop the element
3.Show
4.Show the sum
5.End

Enter the choice: 1

Enter the element to be added onto the stack: 6

Perform operations on the stack:
1.Push the element
2.Pop the element
3.Show
4.Show the sum
5.End

Enter the choice: 1

Enter the element to be added onto the stack: 9
```

```
Enter the choice: 1

Enter the element to be added onto the stack: 9

Perform operations on the stack:
1.Push the element
2.Pop the element
3.Show
4.Show the sum
5.End

Enter the choice: 2

Popped element: 9
Perform operations on the stack:
1.Push the element
2.Pop the element
3.Show
4.Show the sum
5.End

Enter the choice: 3

Elements present in the stack:
6
5
2

Perform operations on the stack:
1.Push the element
2.Pop the element
3.Show
4.Show the sum
5.End

Enter the choice: 4
Sum of the element:13

Process returned 0 (0x0)   execution time : 38.093 s
Press any key to continue.
```