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DS Lab Work

Experiment -1

```c
1    // Program to find the sum of digits of number
2
3    #include <stdio.h>
4
5    int sum_of_digits(int num) {
6
7        int ans = 0;
8
9        while(num) {
10
11            ans += num%10;
12            num = num/10;
13        }
14        return ans;
15    }
16
17    int main() {
18
19        printf("SANTUSHTI SHARMA\n 10314802719\n");
20
21        printf("Enter a number :");
22
23        int num;
24        scanf("%d", &num);
25
26        printf("Sum of digits of a number is %d", sum_of_digits(num));
27
28
29        return 0;
30    }
```

C:\Users\Hp\Desktop\Untitled1.exe

```
SANTUSHTI SHARMA
 10314802719
Enter a number : 45638
Sum of digits of a number is 26
--------------------------------
Process exited after 4.451 seconds with return value 0
Press any key to continue . . .
```

Experiment-2

```c
// program to find maximum of n input numbers
#include <stdio.h>

int findmax(int arr[], int size) {

    int max = arr[0];

    for(int i = 1; i < size; ++i) {

        if(max < arr[i]) {

            max = arr[i];
        }
    }

    return max;
}

int main() {

    printf("SANTUSHTI SHARMA\n 10314802719\n");
    printf("Enter the n:");

    int num;
    scanf("%d", &num);

    int arr[100];

    for(int i = 0; i < num; ++i) {

        scanf("%d", &arr[i]);
    }
    printf("Maximum of array is : %d", findmax(arr, num) );

    return 0;
}
```

Compile Log   Debug   Find Results

```
C:\Users\Hp\Desktop\expt2.exe

SANTUSHTI SHARMA
 10314802719
Enter the n: 5
467
27
282
46
16
Maximum of array is : 467
--------------------------------
Process exited after 15.18 seconds with return value 0
Press any key to continue . . .
```

Experiment-3

```c
// expt 3 - program to find the sum of array
#include <stdio.h>

int sum_of_num (int arr[], int size) {

    int sum = 0;

    for(int i = 0; i < size; ++i) {

        sum += arr[i];
    }

    return sum;
}

int main() {

    printf("SANTUSHTI SHARMA\n 10314802719\n");

    printf("Enter the size of array :");

    int num;
    scanf("%d", &num);

    int arr[100];

    for(int i = 0; i < num; ++i) {

        scanf("%d", &arr[i]);
    }

    printf("sum of numbers in array is : %d", sum_of_num(arr, num));

    return 0;
}
```

Compile Log   ✓ Debug   🔍 Find Results

C:\Users\Hp\Desktop\expt3.exe

```
SANTUSHTI SHARMA
 10314802719
Enter the size of array : 4
376
38
870
367
sum of numbers in array is : 1651
--------------------------------
Process exited after 17.05 seconds with return value 0
Press any key to continue . . .
```

Experiment-4

```c
//Expt 4 reverse array

#include <stdio.h>

void Reverse_Array(int arr[], int size) {

    printf("Reversed Array :\n");

    for(int i = size-1; i >= 0; --i) {

        printf("%d\n", arr[i]);
    }
}

int main() {

    printf("SANTUSHTI SHARMA\n 10314802719\n");

    printf("Enter the size of array");

    int num;
    scanf("%d", &num);

    int arr[100];

    for(int i = 0; i < num; ++i) {

        scanf("%d", &arr[i]);
    }

    Reverse_Array(arr, num);

    return 0;
}
```

C:\Users\Hp\Desktop\expt4.exe

```
SANTUSHTI SHARMA
 10314802719
Enter the size of array 5
35
576
35
474
83
Reversed Array :
83
474
35
576
35


--------------------------------
Process exited after 14.87 seconds with return value 0
Press any key to continue . . .
```

Experiment – 5

```cpp
// expt 5 - Largest and smallest element in array

#include <stdio.h>

int small_val(int arr[], int size) {

    int min = arr[0];

    for(int i = 1; i < size; ++i) {

        if(min > arr[i]) {

            min = arr[i];
        }
    }

    return min;
}

int large_val (int arr[], int size) {

    int max = arr[0];

    for(int i = 1; i < size; ++i) {

        if(max < arr[i]) {

            max = arr[i];
        }
    }

    return max;
}

int main() {
```

es   📊 Compile Log   ✓ Debug   🔍 Find Results

```
33
34          return max;
35   }
36
37 □ int main() {
38          printf("SANTUSHTI SHARMA\n 10314802719\n")
39          public int __cdecl printf (const char * __restrict__ _Format, ...)
40
41          int num;
42          scanf("%d", &num);
43
44          int arr[100];
45
46 □        for(int i = 0; i < num; ++i) {
47
48              scanf("%d", &arr[i]);
49          }
50
51          printf("Largest element of array : is %d \n", large_val(arr, num));
52          printf("Smallest element of array : is %d \n", small_val(arr, num));
53
54          return 0;
55   }
```

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■ C:\Users\Hp\Desktop\expt5.exe

```
SANTUSHTI SHARMA
 10314802719
Enter the size of array 5
10
30
-1
390
28
Largest element of array : is 390
Smallest element of array : is -1

--------------------------------
Process exited after 14.99 seconds with return value 0
Press any key to continue . . .
```