LAB REPORT- 01

Course title: Structured Programming Laboratory

Course Code: CSE 114

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1. The Triangle Tribunal

Code:

```c
1  #include <stdio.h>
2  int main() {
3      int a, b, c;
4      printf("Enter three sides of a triangle: ");
5      scanf("%d %d %d", &a, &b, &c);
6
7      (a + b > c && a + c > b && b + c > a) ?
8          (a == b && b == c) ?
9              printf("Equilateral Triangle\n") :
10         (a == b || b == c || a == c) ?
11             printf("Isosceles Triangle\n"):
12             printf("Scalene Triangle\n") :
13             printf("Invalid triangle\n");
14
15     return 0;
16 }
```

Input/Output:

```
Enter three sides of a triangle: 4 4 4
Equilateral Triangle




=== Code Execution Successful ===
```

```
Enter three sides of a triangle: 8 6 8
Isosceles Triangle




=== Code Execution Successful ===
```

```
Enter three sides of a triangle: 4 5 6
Scalene Triangle




=== Code Execution Successful ===
```

```
Enter three sides of a triangle: 3 8 5
Invalid triangle




=== Code Execution Successful ===
```

2. Square Roots

Code:

```c
#include <stdio.h>
#include <math.h>
int main() {
  float x, y;
    printf("Square Root Table(0 to 9.9.):\n");
    printf("Number ");
    for(float y=0.0; y<1.0; y+=0.1)
    {
        printf("%.1f ", y);
    }
        printf("\n");
    for(float x=0.0; x<10.0; x+=1.0)
    {
        printf("%.1f ", x);
        for(float y=0.0; y<1.0; y+=0.1)
        {
            printf("%.2f ", sqrt(x+y));
        }
          printf("\n");
    }
      return 0;
}
```

Input/Output:

```
Square Root Table(0 to 9.9.):
Number 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
0.0 0.00 0.32 0.45 0.55 0.63 0.71 0.77 0.84 0.89 0.95
1.0 1.00 1.05 1.10 1.14 1.18 1.22 1.26 1.30 1.34 1.38
2.0 1.41 1.45 1.48 1.52 1.55 1.58 1.61 1.64 1.67 1.70
3.0 1.73 1.76 1.79 1.82 1.84 1.87 1.90 1.92 1.95 1.97
4.0 2.00 2.02 2.05 2.07 2.10 2.12 2.14 2.17 2.19 2.21
5.0 2.24 2.26 2.28 2.30 2.32 2.35 2.37 2.39 2.41 2.43
6.0 2.45 2.47 2.49 2.51 2.53 2.55 2.57 2.59 2.61 2.63
7.0 2.65 2.66 2.68 2.70 2.72 2.74 2.76 2.77 2.79 2.81
8.0 2.83 2.85 2.86 2.88 2.90 2.92 2.93 2.95 2.97 2.98
9.0 3.00 3.02 3.03 3.05 3.07 3.08 3.10 3.11 3.13 3.15


=== Code Execution Successful ===
```

3. Armstrong number

Code:

```c
1   #include <stdio.h>
2   #include <math.h>
3   int main() {
4       int num, originalNum, remainder, n = 0, result = 0;
5
6       printf("Enter an integer: ");
7       scanf("%d", &num);
8
9       originalNum = num;
10
11      while (originalNum != 0)
12      {
13          originalNum /= 10;
14          ++n;
15      }
16
17      originalNum = num;
18
19      while (originalNum != 0)
20      {
21          remainder = originalNum % 10;
22
23          int power = 1;
24          for ( int i = 0; i < n; i++) {
25              power *= remainder;
26      }
27
28          result += power;
29          originalNum /= 10;
30      }
31      if (result == num)
32          printf("%d is an Armstrong number.\n", num);
33      else
34          printf("%d is not an Armstrong number.\n", num);
35
36      return 0;
37  }
```

Input/Output:

```
Enter a three-digit integer: 1856
1856 is not an Armstrong number.

=== Code Execution Successful ===
```

4. Playing with Triangle

Code:

```c
#include <stdio.h>
int main() {
    int n;
    printf("Enter the value of Row: ");
    scanf("%d", &n);
    for(int i=1; i<=n; i++)
    {
        for(int j=1; j<=n-i; j++)
        printf(" ");
        for(int k=1; k<=i*2-1; k++)
        printf("*");
        printf("\n");
    }
```

Input/Output:

```
Enter the value of Row:5
    *
   ***
  *****
 *******
*********



=== Code Execution Successful ===
```

5. Fibonacci series

Code:

```c
1   #include <stdio.h>
2
3 ▾ int main() {
4       int n, t1=0, t2=1, nextTerm;
5       printf("Enter the number of terms in Fibonacci Series: ");
6       scanf("%d", &n);
7       printf("\n");
8       printf("The Fibonacci Series is: ");
9       for(int i=1; i<=n; i++)
10 ▾    {
11          printf("%d ", t1);
12          nextTerm = t1+t2;
13          t1 = t2;
14          t2 = nextTerm;
15      }
16
17      return 0;
18  }
```

Input/Output:

```
Enter the number of terms in Fibonacci Series: 10

The Fibonacci Series is: 0 1 1 2 3 5 8 13 21 34

=== Code Execution Successful ===
```