

## TUTORIALS – 4

### (MODULE – 2)

#### 1. C Program to Add Two Complex Numbers

main.c	Output
<pre>1 //TUTORIALS - 4, MODULE - 2 2 //QN 1 3 //1. C Program to Add Two Complex Numbers 4 //Enter the value of real and imaginary parts using a space 5 //Eg:2 3 (like this) 6 #include &lt;stdio.h&gt; 7 #include &lt;math.h&gt; 8 9 int main() 10 { 11     int a,b,c,d; 12 13     printf("Enter the real and imaginary parts of the first complex number (a+ib):"); 14     scanf("%d %d", &amp;a, &amp;b); 15     printf("Enter the real and imaginary parts of the second complex number (c+id):"); 16     scanf("%d %d", &amp;c, &amp;d); 17 18     //Addition of complex numbrs 19     int s = a + c; 20     int t = b + d; 21     printf("Sum of the complex numbers: %d + %di\n", s, t); 22 23     return 0; 24 }</pre>	<pre>/tmp/9L0nU3bD3L.o Enter the real and imaginary parts of the first complex number (a+ib):12 23 Enter the real and imaginary parts of the second complex number (c+id):44 78 Sum of the complex numbers: 56 + 101i</pre>

#### 2. C Program To Find Simple Interest

main.c	Output
<pre>1 //TUTORIALS - 4, MODULE - 2 2 //QN 2 3 //C Program To Find Simple Interest 4 //Simple Interest = {(P x T x R)}/{100} 5 //2. Where P is the principal amount, T is the time, and, R is the interest rate. 6 7 #include &lt;stdio.h&gt; 8 #include &lt;math.h&gt; 9 int main() 10 { 11     float principal, rate, time, simple_interest; 12 13     printf("Enter principal:"); 14     scanf("%f", &amp;principal); 15 16     printf("Enter rate:"); 17     scanf("%f", &amp;rate); 18 19     printf("time:"); 20     scanf("%f", &amp;time); 21 22     simple_interest = (principal * time * rate) / 100; 23 24     printf("Simple Interest = %0.3f", simple_interest); 25     return 0; 26 } 27</pre>	<pre>/tmp/9L0nU3bD3L.o Enter principal:10000.00 Enter rate:3.875 time:5 Simple Interest = 1937.500</pre>

3. Write a C program to calculate Compound Interest. use pow function.

```
main.c [Icons] [Save] [Run]

1 //TUTORIALS - 4, MODULE - 2
2 //QN 3
3 //3. Write a C program to calculate Compound Interest.use pow
  function.
4
5 /*A = P(1 + r/n)^nt
6 A = represents the final amount
7 P = original principal amount
8 r = is the interest rate over a given period
9 n = represents the number of times the interest rate is applied
  over time
10 t = Time in Years*/
11
```

```
main.c [Icons] [Save] [Run] [Output]

11
12 #include <stdio.h>
13 #include <math.h>
14
15 int main()
16 {
17     float principal, rate, time, compound_interest;
18
19     printf("Enter the principal:");
20     scanf("%f", &principal);
21
22     printf("Enter the rate:");
23     scanf("%f", &rate);
24
25     printf("Enter the time:");
26     scanf("%f", &time);
27
28     //A = P(1 + r/100)^n
29     compound_interest = principal * (pow((1 + rate / 100), time) - 1);
30
31     printf("compound_interest = %.2f\n", compound_interest);
32
33     return 0;
34 }
35
```

Output

```
/tmp/LzpE2oEz2a.o
Enter the principal:1000
Enter the rate:5
Enter the time:2
compound_interest = 102.50
```

4. Write a program to Find all the roots of a quadratic equation in C. check for all three conditions.

main.c	Save	Run	Output
<pre>1 //TUTORIALS - 4, MODULE - 2 2 //QN 4 3 //1. Write a program to Find all the roots of a quadratic equation in C.check for all three   conditions. 4 #include &lt;stdio.h&gt; 5 int main() { 6     float a, b, c, r1, r2, img, d; 7     printf("Enter the coefficients of the quadratic equation a, b, c:\n"); 8     scanf("%f %f %f", &amp;a, &amp;b, &amp;c); 9 10    d = b * b - 4 * a * c; 11 12    if (d &gt; 0) { 13        r1 = (-b + sqrt(d)) / (2 * a); 14        r2 = (-b - sqrt(d)) / (2 * a); 15        printf("Roots are %0.2f and %0.2f\n", r1, r2); 16    } 17    else if (d == 0) { 18        r1 = -b / (2 * a); 19        printf("Only one root: %0.2f\n", r1); 20    } 21    else { 22        r1 = -b / (2 * a); 23        img = sqrt(-d) / (2 * a); 24        printf("Complex Roots are %0.2f + %0.2fi and %0.2f - %0.2fi\n", r1, img, r1, img); 25    } 26 27    return 0; 28 }</pre>			<pre>/tmp/BmHQzB0VBT.o Enter the coefficients of the quadratic equation a, b, c: 1 -3 -2 Roots are 3.56 and -0.56  </pre>