CCA-101: Fundamentals of IT & Programming

"Do it yourself" assignments with Solutions

Q. No. 1: Write a program in C to display your name and address on computer screen.

Solution

```
#include <stdio.h>
void main() {
     printf("\n Dr Sheelesh Kumar Sharma");  // it displays the string inside quotation on computer screen
     printf("\n IMS Ghaziabad");  // it displays the string inside quotation on computer screen
   }
```

Output

```
Dr Sheelesh Kumar Sharma
IMS Ghaziabad
```

Q. No. 2: Write a program in C to add two integer numbers

Solution

```
#include <stdio.h>
void main() {
   int n1, n2, sum; // it declares three variables n1, n2 and sum as integer type

   printf("Enter two integer numbers: ");
   scanf("%d %d", &n1, &n2);  // it reads two numbers that are stored in variables n1 and n2 respectively

   sum = n1 + n2; // calculating sum

   printf("sum = %d",sum); //it displays the value of sum
  }
```

Output

```
Enter two integer numbers: 10     20
Sum = 30
```

Q.No. 3: Write a program in C to compute the value of x in this expression x= 20/(8-4)*8-2

Solution

```
#include <stdio.h>
void main() {
   int x;

   x= 20/(8-4)*8-2;

   printf("x = %d",x); //it displays the value of x
  }
```

Output

```
x = 38
```

Q.No. 4: Write a program in C to compute a quotient and remainder

Solution

```
#include <stdio.h>
void main() {
   int dividend, divisor, quotient, remainder; // it declares variables as
integer type
   printf("Enter dividend: ");
   scanf("%d", &dividend);  // it reads the value of dividend
   printf("Enter divisor: ");
   scanf("%d", &divisor); // it reads the value of divisor

    quotient = dividend / divisor;  //it computes quotient

    remainder = dividend % divisor;  // it computes remainder

   printf("Quotient = %d\n", quotient);  // it displays the value of quotient
   printf("Remainder = %d", remainder);  // it displays the value of
remainder
}
```

Output

```
Enter dividend: 20
Enter divisor: 3
Quotient = 6
Remainder = 2
```

Q.No. 5: Write a program in C to swap the value of two integer numbers

Solution

Swap numbers using temporary variable

```
#include<stdio.h>
void main() {
    int n1, n2, temp;

    n1=10;
    n2=20;

     temp = n1;   // Value of n1 is assigned to temp
     n1 = n2;     // Value of n2 is assigned to n1
     n2=temp;   // Value of temp (initial value of n1) is assigned to n2

    printf("\n After swapping, n1 Number = %d", n1);
    printf("\n After swapping, n2 Number = %d", n2);
    }
```

Output

```
After swapping,  n1 Number = 20
After swapping, n2 Number = 10
```

In the above program, the temp variable is assigned the value of the n1 variable.
Then, the value of the n1 variable is assigned to the n2 variable.
Finally, the temp (which holds the initial value of n1) is assigned to n2. This completes the swapping process.

Swap numbers without using temporary variables

```
#include<stdio.h>
void main() {
    int n1, n2;
     n1=40;
     n2=10;

    // Swapping
      n1 = n1 – n2;     // n1 = 40-10 so n1= 30
```

```
      n2 = n1 + n2;     // n2 = 30+10  so n2= 40
      n1 = n2 – n1;    // n1 = 40-30 so n1=10
     printf("\n After swapping, n1 Number = %d", n1);
     printf("\n After swapping, n2 Number = %d", n2);
     }
```

Output

```
After swapping,  n1 Number = 10
After swapping, n2 Number = 40
```

Q. No. 6: Write a program to find the Largest of three numbers

Solution

```
#include <stdio.h>
void main(){
   int n1, n2, n3, largest;
   printf("Enter three different numbers: ");
   scanf("%d %d %d", &n1, &n2, &n3);

   if (n1 > n2 )
      largest = n1;
   else
      largest = n2;
   if (n3 >= largest)
     largest=n3;

    printf("Largest number is %d”, largest);
   }
```

Output

```
Enter three numbers: 30   20   40
Largest number is 40
```

Q. No. 7: Write a Program to check whether a integer number is even or odd.

Solution

```
#include <stdio.h>
void main() {
   int num;
```

```
    printf("Enter a number: ");
    scanf("%d", &num);
    if ((num % 2) ==0) {
        printf("Even number");
     else
        printf("Odd number");
    }
```

Output 1

```
Enter a number: 12
Even number
```

Output 2

```
Enter a number: 11
Odd number
```

Q.No. 8 Write a program to display table of any integer number.

Solution

```
#include <stdio.h>
void main() {
    int n, i;
    printf("Enter an integer: ");
    scanf("%d", &n);
    for(i = 1; i <= 10; ++i) {
        printf("%d * %d = %d \n", n, i, n * i);
    }
   }
```

Output

```
Enter an integer: 9
9 * 1 = 9
9 * 2 = 18
9 * 3 = 27
9 * 4 = 36
9 * 5 = 45
9 * 6 = 54
9 * 7 = 63
9 * 8 = 72
9 * 9 = 81
```

```
9 * 10 = 90
```

Q. No. 9 Write a program to display first ten terms of the Fibonacci sequence.

Solution

```
The Fibonacci sequence: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34
```

The Fibonacci sequence is a sequence where the next term is the sum of the previous two terms.
The first two terms of the Fibonacci sequence are 0 followed by 1.

```
#include <stdio.h>
void main() {
   int i, n, t1 = 0, t2 = 1, nextTerm;
   printf("Enter the number of terms: ");
   scanf("%d", &n);
   printf("Fibonacci Series: ");

   for (i = 1; i <= n; ++i) {
      printf("%d, ", t1);
      nextTerm = t1 + t2;
      t1 = t2;
      t2 = nextTerm;
   }
  }
```

Output

```
Enter the number of terms: 10
Fibonacci Series: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34,
```

Q. No. 10 Write a program to calculate the sum of digits of an integer number.

Solution

```
#include <stdio.h>
void main() {
   int n, sum = 0, digit;
   printf("Enter an integer: ");
   scanf("%d", &n);
   while (n != 0) {
      digit = n % 10;
      sum = sum + digit;
```

```
    n = n / 10;
  }
  printf("Sum of the digits = %d", sum);
 }
```

Output

```
Enter an integer: 142
Sum of the digits = 7
```

This program takes an integer input from the user 142. The While loop is used until n !=0 is false. In each iteration of the loop, each digit (using digit = n%10) when n is divided by 10 is calculated and the value of n is reduced by 10 times (n = n / 10). Inside the loop, the sum of digits of an integer number is computed using sum = sum + digit

Q. No.11 Write a program to reverse an integer number.

Solution

```
#include<stdio.h>
void main() {
  int n, rev = 0, digit;
  printf("Enter an integer: ");
  scanf("%d", &n);
  while (n != 0) {
     digit = n % 10;
     rev = rev * 10 + digit;
     n = n/ 10;
  }
  printf("Reversed number = %d", rev);
 }
```

Output

```
Enter an integer: 345
Reversed number = 543
```

This program takes an integer input from the user 345. The While loop is used until n !=0 is false. In each iteration of the loop, the digit (digit = n % 10), when n is divided by 10 is calculated and the value of n is reduced by 10 times (n = n/ 10). Inside the loop, the reversed number is computed using: rev = rev*10 + digit.

Q. No.12 Write a program to calculate factors of a positive integer.

Solution

```
#include <stdio.h>
void main() {
    int num, i;
    printf("Enter a positive integer: ");
    scanf("%d", &num);
    printf("Factors of %d are: ", num);
    for (i = 1; i <= num; ++i) {
        if (num % i == 0) {
            printf("%d ", i);
           }
     }
}
```

Output

```
Enter a positive integer: 10
Factors of 10 are: 1   2   5   10
```