Assignment 1 (Basics):

Ex1:

```c
#include <stdio.h>

int main()
{

    printf("C Programming");
    return 0;

}
```

```
Console
NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex1.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex1.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex1.c"
Process started (PID=2832) >>>
<<< Process finished (PID=2832). (Exit code 0)
"ex1.exe"
Process started (PID=15112) >>>
C Programming<<< Process finished (PID=15112). (Exit code 0)
=============== READY ===============
```

Ex2:

```c
#include <stdio.h>

int main()
{
    int num;
    printf("Enter a integer: ");
    fflush(stdout);
    scanf("%d", &num);
    fflush(stdin);
    printf("You entered: %d", num);

    return 0;
}
```

```
Console
NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex2.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex2.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex2.c"
Process started (PID=18124) >>>
<<< Process finished (PID=18124). (Exit code 0)
"ex2.exe"
Process started (PID=10452) >>>
Enter a integer: 2
You entered: 2<<< Process finished (PID=10452). (Exit code 0)
=============== READY ===============
```

Ex3:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    int num_1, num_2;
    printf("Enter two integers: ");
    scanf("%d %d", &num_1, &num_2);
    printf("Sum: %d", num_1 + num_2);

    return 0;
}
```

```
Console
NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex3.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex3.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex3.c"
Process started (PID=13456) >>>
<<< Process finished (PID=13456). (Exit code 0)
"ex3.exe"
Process started (PID=2092) >>>
Enter two integers: 2 3
Sum: 5<<< Process finished (PID=2092). (Exit code 0)
=============== READY ===============
```

Ex4:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    float num_1, num_2, total;
    printf("Enter two numbers: ");
    scanf("%f %f", &num_1, &num_2);
    total = num_1 * num_2;
    printf("Sum: %.6f", total);

    return 0;
}
```

```
Console
NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex4.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex4.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex4.c"
Process started (PID=16508) >>>
<<< Process finished (PID=16508). (Exit code 0)
"ex4.exe"
Process started (PID=3076) >>>
Enter two numbers: 1.2 2.3
Sum: 2.760000<<< Process finished (PID=3076). (Exit code 0)
=============== READY ===============
```

Ex5:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    char c ;
    printf("Enter a character: ");
    scanf("%c",&c);
    printf("ASCII value of %c = %d", c, c);

    return 0;
}
```

```
Console

NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex5.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex5.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex5.c"
Process started (PID=13352) >>>
<<< Process finished (PID=13352). (Exit code 0)
"ex5.exe"
Process started (PID=11160) >>>
Enter a character: c
ASCII value of c = 99<<< Process finished (PID=11160). (Exit code 0)
=============== READY ================
```

Ex6:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    float a, b, tmp;
    // getting the input
    printf("Enter value of a: ");
    scanf("%f", &a);
    printf("Enter value of b: ");
    scanf("%f", &b);

    // swapping
    tmp = a;
    a = b;
    b = tmp;

    // printing
    printf("After swapping, value of a = %g\n", a);
    printf("After swapping, value of b = %g", b);
    return 0;
}
```

```
Console

NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex6.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex6.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex6.c"
Process started (PID=3216) >>>
<<< Process finished (PID=3216). (Exit code 0)
"ex6.exe"
Process started (PID=18124) >>>
Enter value of a: 1
Enter value of b: 3
After swapping, value of a = 3
After swapping, value of b = 1<<< Process finished (PID=18124). (Exit code 0)
=============== READY ================
```

Ex7:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    int a, b;
    // getting the input
    printf("Enter value of a: ");
    scanf("%d", &a);
    printf("Enter value of b: ");
    scanf("%d", &b);

    // swapping
    a = a ^ b;
    b = a ^ b;
    a = a ^ b;

    // printing
    printf("After swapping, value of a = %d\n", a);
    printf("After swapping, value of b = %d", b);
    return 0;
}
```

```
Console

NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex7.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex7.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex7.c"
Process started (PID=10784) >>>
<<< Process finished (PID=10784). (Exit code 0)
"ex7.exe"
Process started (PID=14488) >>>
Enter value of a: 2
Enter value of b: 5
After swapping, value of a = 5
After swapping, value of b = 2<<< Process finished (PID=14488). (Exit code 0)
=============== READY ================
```

Ex8:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    int num;
    printf ("Enter an integer you want to check: ");
    scanf("%d", &num);
    if(num%2 == 0){
        printf ("%d is even", num);
    }
    else{
        printf ("%d is odd", num);
    }
    return 0;
}
```

```
Console

NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex8.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex8.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex8.c"
Process started (PID=18244) >>>
<<< Process finished (PID=18244). (Exit code 0)
"ex8.exe"
Process started (PID=5680) >>>
Enter an integer you want to check: 6
6 is even<<< Process finished (PID=5680). (Exit code 0)
=============== READY ================
```

Ex9:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    char c;
    char vowels[5] = {'a', 'e', 'o' , 'u', 'i'};

    printf ("Enter an alphabet: ");
    scanf("%c", &c);
    if(c <97){
        c += 32;
    }
    for(char i = 0; i<5; i++){
        if(c == vowels[i]){
            printf("%c is a vowel.", c);
            return 0;
        }
    }
    printf("%c is a constant.", c);
    return 0;
}
```

```
Console                                                    ×
NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex9.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex9.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex9.c"
Process started (PID=12592) >>>
<<< Process finished (PID=12592). (Exit code 0)
"ex9.exe"
Process started (PID=8072) >>>
Enter an alphabet: A
a is a vowel.<<< Process finished (PID=8072). (Exit code 0)
================ READY ================
```

Ex10:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    float num0, num1, num2, max;
    printf("Enter three numbers: ");
    scanf("%f %f %f", &num0, &num1, &num2);
    if(num0 > num1){
        if(num0 > num2)
            max = num0;
        else
            max = num2;
    }
    else{
        if(num1 > num2)
            max = num1;
        else
            max = num2;
    }
    printf("largest number = %g", max);
    return 0;
}
```

```
Console
NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex10.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex10.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex10.c"
Process started (PID=15036) >>>
<<< Process finished (PID=15036). (Exit code 0)
"ex10.exe"
Process started (PID=4140) >>>
Entre three numbers: 4 3 9
largest number = 9<<< Process finished (PID=4140). (Exit code 0)
================ READY ================
```

Ex11:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    float num0;
    printf("Entre a number: ");
    scanf("%f", &num0);
    if(num0 > 0){
        printf("%g is positive.", num0);
    }
    else if(num0 < 0){
        printf("%g is negative.", num0);
    }
    else{
        printf("you entered zero");
    }
    return 0;
}
```

```
Console
NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex11.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex11.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex11.c"
Process started (PID=15740) >>>
<<< Process finished (PID=15740). (Exit code 0)
"ex11.exe"
Process started (PID=18056) >>>
Entre a number: -6
-6 is negative.<<< Process finished (PID=18056). (Exit code 0)
================ READY ================
```

Ex12:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    char c;
    printf("Enter a character : ");
    scanf("%c", &c);
    if((c>= 'a' && c<= 'z') || (c >= 'A' && c <= 'Z'
        printf("%c is an alphabet", c);
    }
    else{
        printf("%c is not an alphabet", c);
    }

    return 0;
}
```

```
Console
NPP_EXEC: "c++exec"
NPP_SAVE: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex12.c
CD: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
Current directory: E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics
g++ -o "ex12.exe" "E:\Embeded\kerolos diploma\codes\C_programming\Assignment_1_basics\ex12.c"
Process started (PID=4052) >>>
<<< Process finished (PID=4052). (Exit code 0)
"ex12.exe"
Process started (PID=3480) >>>
Enter a character : 6
6 is not an alphabet<<< Process finished (PID=3480). (Exit code 0)
================ READY ================
```

Ex13:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    int num, sum=0;
    printf("Enter an integer : ");
    scanf("%d", &num);
    for( int i = 0; i <= num; i++){
        sum += i;
    }
    printf("Sum = %d", sum);

    return 0;
```

Ex14:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    int num, sum=1;
    printf("Enter an integer : ");
    scanf("%d", &num);
    if(num <0){
        printf("ERROR!!! Factorial of negative number
    }
    else{
        for( int i = 1; i <= num; i++){
            sum *= i;
        }
        printf("Sum = %d", sum);
    }
    return 0;
}
```

Ex15:

```c
#include <stdio.h>

int main()
{
    setvbuf(stdout, NULL, _IONBF, 0);
    setvbuf(stderr, NULL, _IONBF, 0);
    char c;
    float num1, num2, result;

    printf("Enter operator either + or - or * or div
    scanf("%c", &c);
    printf("Enter two operands: ");
    scanf("%f %f", &num1, &num2);
    switch(c){
        case '+':
            result = num1 + num2;
            break;
        case '-':
            result = num1 - num2;
            break;
        case '*':
            result = num1 * num2;
            break;
        case '/':
            result = num1 / num2;
            break;
        default:
            printf("not valid operator");
            return 0;
            break;

    }
    printf("%g %c %g = %g", num1, c, num2, result);

    return 0;
}
```