Lab # 05 Tasks

Task 5: Nested Switch-Case for Student's Performance

Write a C program that implements the Nested Switch-Case for a School Grading System as described.

Program:

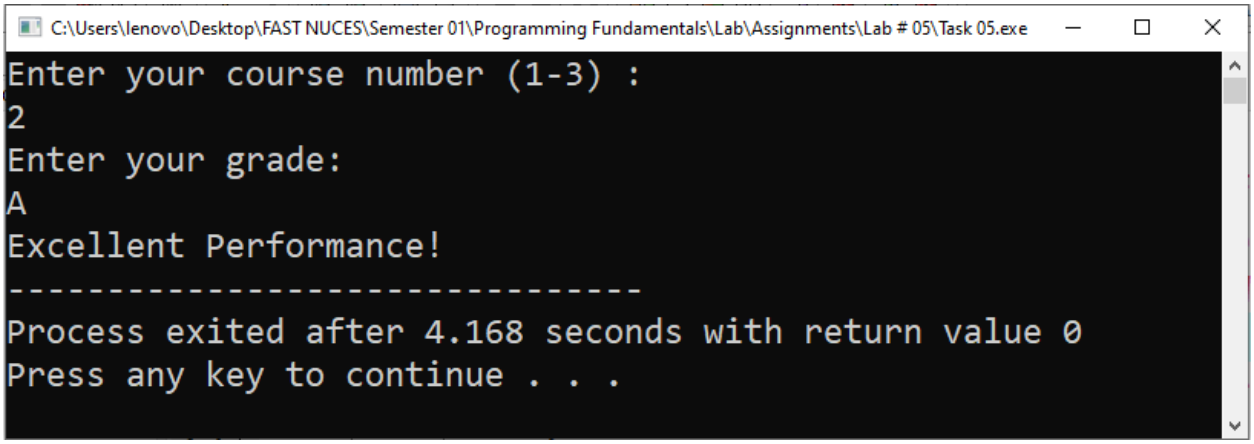
```c
#include <stdio.h>

int main(void){
    int course_num;
    char grade;
    printf("Enter your course number (1-3) : \n");
    scanf("%d",&course_num);

    printf("Enter your grade: \n");
    scanf(" %c", &grade);

    switch(course_num){
        case 1:
        case 2:
        case 3:
            switch(grade){
                case 'A': printf("Excellent Performance!"); break;
                case 'B': printf("Good Performance, can be improved!"); break;
                case 'C': printf("Needs Improvement!"); break;
                case 'D': printf("Need to Work really hard!"); break;
                case 'F': printf("Focus on your studies!"); break;
                default: printf("Invalid Grade");
            }
            break;
        default: printf("Invalid course number");
    }
    return 0;
}
```

Output:



Task 6: Nested Ternary Operator for Maximum Value

Use nested ternary operators to find the maximum of three numbers.

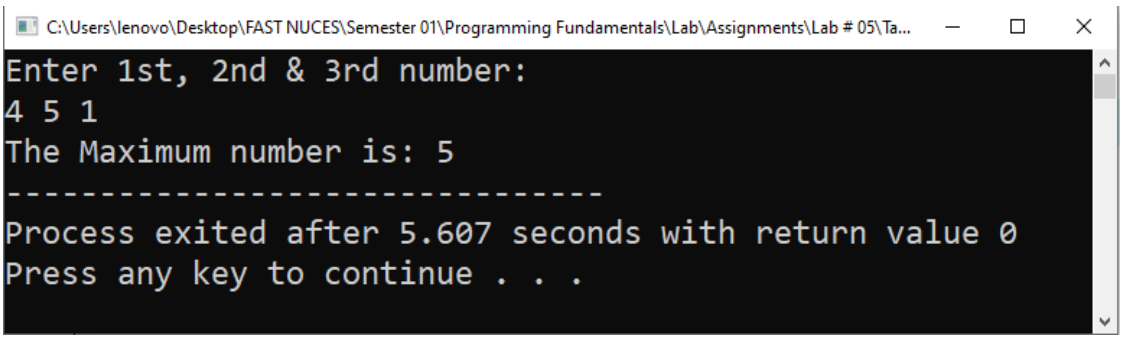
Program:

```c
#include <stdio.h>

int main(void){
    int x,y,z,max;
    printf("Enter 1st, 2nd & 3rd number: \n");
    scanf("%d %d %d",&x,&y,&z);

    max = (x>y)?((x>z)?x:z):y;
    printf("The Maximum number is: %d", max);
    return 0;
}
```

Output:



Task 7: Arithmetic Operators

Write a program that accepts two integers and performs various arithmetic operations on them.

Program:

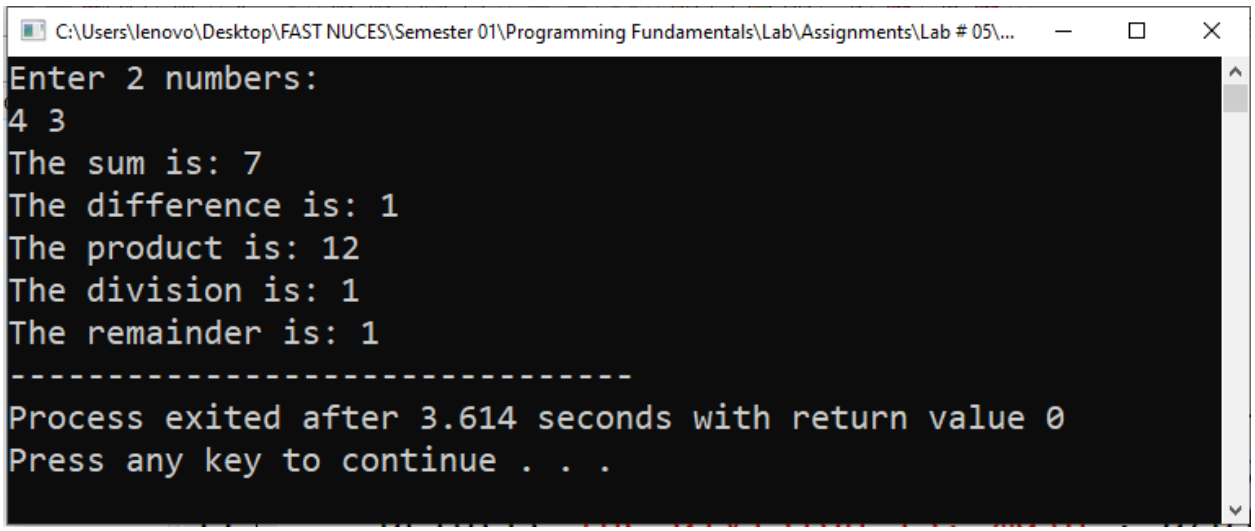
```c
#include <stdio.h>

int main(void){
    int a,b;
    printf("Enter 2 numbers: \n");
    scanf("%d %d",&a,&b);

    printf("The sum is: %d\n", a+b);
    printf("The difference is: %d\n", a-b);
    printf("The product is: %d\n", a*b);
    printf("The division is: %d\n", a/b);
    printf("The remainder is: %d", a%b);

    return 0;
}
```

Output:



Task 8: Relational Operators

Demonstrate the use of relational operators by comparing two user-entered integers.

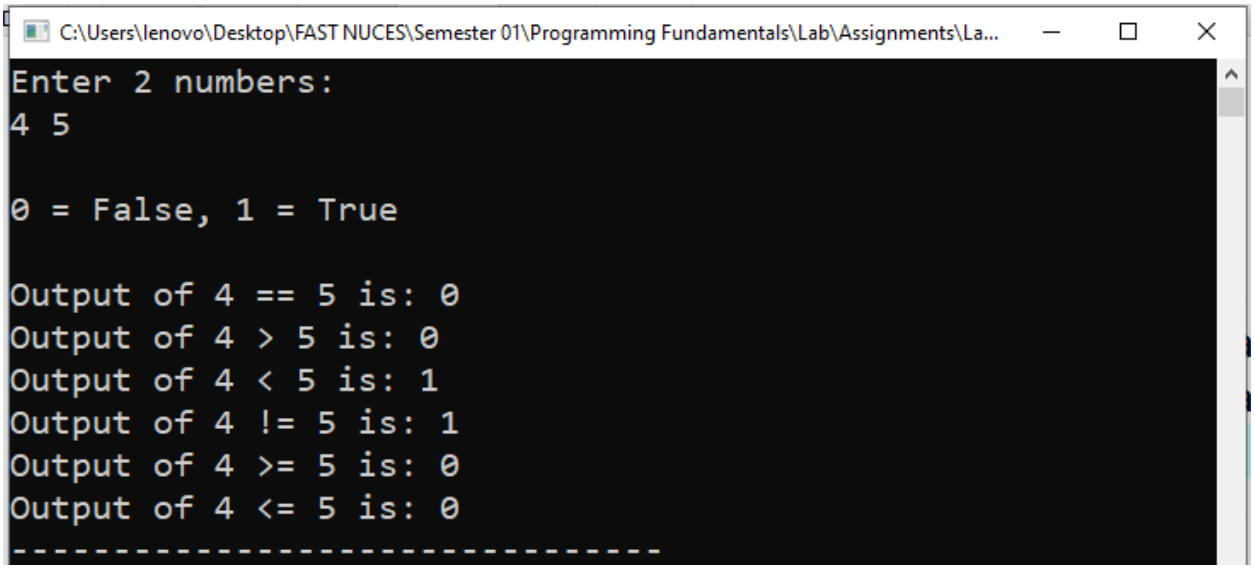
Program:

```c
#include <stdio.h>

int main(void){
    int a,b;
    printf("Enter 2 numbers: \n");
    scanf("%d %d",&a,&b);

    printf("\n0 = False, 1 = True\n\n");
    printf("Output of %d == %d is: %d\n",a,b,a==b);
    printf("Output of %d > %d is: %d\n",a,b,a>b);
    printf("Output of %d < %d is: %d\n",a,b,a<b);
    printf("Output of %d != %d is: %d\n",a,b,a!=b);
    printf("Output of %d >= %d is: %d\n",a,b,a==b);
    printf("Output of %d <= %d is: %d",a,b,a==b);
    return 0;
}
```

Output:



Task 9: Use Bitwise Operators

Practice using bitwise operators by writing a program that performs bitwise operations on two integers.

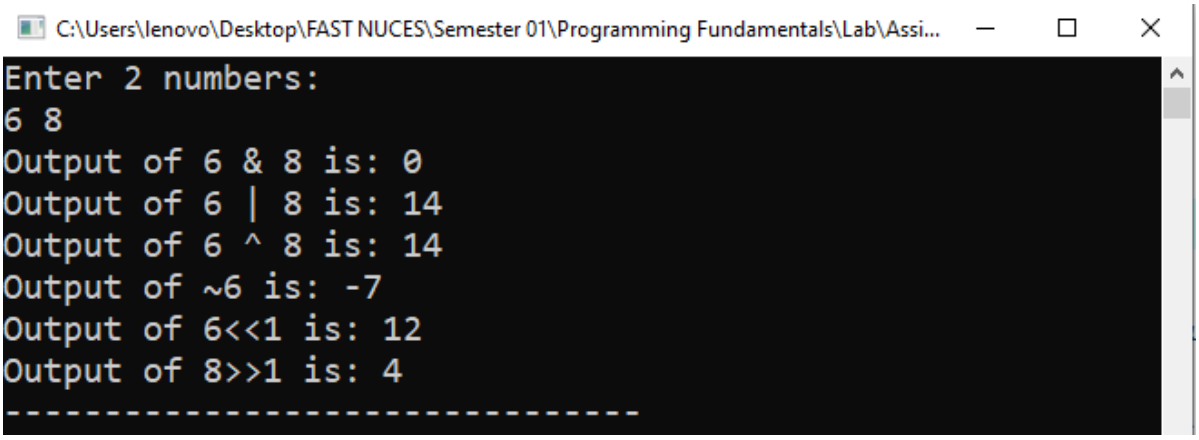
Program:

```c
#include <stdio.h>

int main(void){
    int a,b;
    printf("Enter 2 numbers: \n");
    scanf("%d %d",&a,&b);

    printf("Output of %d & %d is: %d\n",a,b,a&b);
    printf("Output of %d | %d is: %d\n",a,b,a|b);
    printf("Output of %d ^ %d is: %d\n",a,b,a^b);
    printf("Output of ~%d is: %d\n",a,~a);
    printf("Output of %d<<1 is: %d\n",a,a<<1);
    printf("Output of %d>>1 is: %d",b,b>>1);
    return 0;
}
```

Output:



Task 10: Nested If-Else for Largest of Three Numbers

Practice using nested if-else statements by writing a program that finds the largest of three user-entered numbers.

Program:

```c
#include <stdio.h>

int main(void){
    int x,y,z,max;
    printf("Enter 1st, 2nd & 3rd number: \n");
    scanf("%d %d %d",&x,&y,&z);

    if(x>y){
        if(x>z){
            printf("%d is the largest number!",x);
        }
        else{
            printf("%d is the largest number!",z);
        }
    }
    else{
        printf("%d is the largest number!",y);
    }
    return 0;
}
```

Output: