basic_inc_operator.c

```c
#include <stdio.h>

int main(void) {
    int x = 5;

    // Increment
    printf("Initial x = %d\n", x);   // prints 5
    x++;                             // x becomes 6
    printf("After x++ : x = %d\n", x); // prints 6

    ++x;                             // x becomes 7
    printf("After ++x : x = %d\n", x); // prints 7

    // Decrement
    x--;                             // x becomes 6
    printf("After x-- : x = %d\n", x); // prints 6

    --x;                             // x becomes 5
    printf("After --x : x = %d\n", x); // prints 5

    return 0;
}

/*****************************
* Output:
Initial x = 5
After x++ : x = 6
After ++x : x = 7
After x-- : x = 6
After --x : x = 5
*****************************/
```

prefix_postfix.c

```c
#include <stdio.h>

int main(void) {
    int a = 5, b;

    // Postfix: value of a is used first (5), then a becomes 6
    b = a++;
    // after this: a == 6, b == 5
    printf("After b = a++ -> a = %d, b = %d\n", a, b);

    a = 5; // reset
    // Prefix: a becomes 6 first, then value 6 is assigned to b
    b = ++a;
    // after this: a == 6, b == 6
    printf("After b = ++a -> a = %d, b = %d\n", a, b);

    // Postfix in an expression
    a = 3;
    printf("Using postfix in expression: a = %d, (a++ + 2) = %d, now a = %d\n",
           a, a++ + 2, a);
    // Evaluation: (a++ + 2) uses a's old value 3 -> 3+2 = 5; after expression a becomes 4

    // Prefix in an expression
    a = 3;
    printf("Using prefix in expression: a = %d, (++a + 2) = %d, now a = %d\n",
           a, ++a + 2, a);
    // (++a + 2) increments a to 4 then 4+2 = 6

    return 0;
}


/*****************************
* Output:
*****************************
After b = a++ -> a = 6, b = 5
After b = ++a -> a = 6, b = 6
Using postfix in expression: a = 3, (a++ + 2) = 5, now a = 4
Using prefix in expression: a = 3, (++a + 2) = 6, now a = 4
*****************************/

```

odd_even.c

```c
#include <stdio.h>

// write a program to check whether a number is odd or even using ternary operator

// process: 1

int main() {
    int number;
    char* result; // to store the result string

    printf("Enter an integer: ");
    scanf("%d", &number);

    // Using ternary operator to check odd or even
    result = (number % 2 == 0) ? "Even" : "Odd";

    printf("The number is: %s\n", result);

    return 0;
}
```

ternary_operator.c

```c
#include <stdio.h>

int main() {
    int a = 10, b = 20;
    int max;

    // Use ternary operator to find the maximum value
    max = (a > b) ? a : b;

    printf("The maximum value is: %d\n", max); // Output: The maximum value is: 20

    return 0;
}
```

odd_even_2.c

```c
#include <stdio.h>

// write a program to check whether a number is odd or even using ternary operator

int main() {
    int number;
    printf("Enter an integer: ");
    scanf("%d", &number);

    // Using ternary operator to check odd or even
    (number % 2 == 0) ?
        printf("%d is even.\n", number) :
        printf("%d is odd.\n", number);

    // Using ternary operator to check odd or even and print the result
    //printf("%d is %s.\n", number, (number % 2 == 0) ? "even" : "odd");

    return 0;
}
```

odd_even_3.c

```c
#include <stdio.h>

// write a c program to check whether a number is odd or even

int main() {
    int number;

    printf("Enter an integer: ");
    scanf("%d", &number);

    if (number % 2 == 0) {
        printf("%d is even.\n", number);
    } else {
        printf("%d is odd.\n", number);
    }

    return 0;
}


```

if.c

```c
#include <stdio.h>

// example of if statement in C

int main() {

    int age = 14;

    // If statement
    if (age >= 18) {
        printf("Eligible for vote\n");
    }

    return 0;
}
```

ifelse.c

```c
#include <stdio.h>

// example of if-else statement in C

int main() {

    int age = 14;

    // If-Else statement
    if (age >= 18) {
        printf("Eligible for vote\n");
    } else {
        printf("Not eligible for vote\n");
    }

    // pass and fail example
    int marks = 75;
    if (marks >= 50) {
        printf("Pass\n");
    } else {
        printf("Fail\n");
    }

    return 0;
}
```

nested-ifelse.c

```c
#include <stdio.h>

// example of nested if-else statement in C

int main() {

   int number;
    printf("Enter a number: ");
    scanf("%d", &number);

    if (number > 0) {  // Outer condition
        printf("The number is positive.\n");
    } else {  // Outer else
        if (number == 0) {  // Inner condition
            printf("The number is zero.\n");
        } else {
            printf("The number is negative.\n");
        }
    }

    return 0;
}
```

nested_ifelse_2.c

```c
#include <stdio.h>
int main() {
    int marks;
    printf("Enter your marks: ");
    scanf("%d", &marks);

    if (marks >= 50) {  // Outer condition
        if (marks >= 90) {  // Inner condition
            printf("Grade: A\n");
        } else {
            printf("Grade: B\n");
        }
    } else {
        printf("Grade: F\n");
    }

    return 0;
}
```