CS101 Tutorial sheet 01
Operators and if else

1. Operator Precedence Demonstration:

```
#include <stdio.h>

int main() {
   int result = 5 + 10 * 2 - 8 / 4;
   printf("Result: %d\n", result);
   return 0;
}
```

2. Parentheses Influence:

```
#include <stdio.h>

int main() {
   int result = (5 + 10) * 2 - 8 / 4;
   printf("Result: %d\n", result);
   return 0;
}
```

3. Bitwise Operator Precedence:

```
#include <stdio.h>

int main() {
   int x = 5, y = 3;
   int result = x & y | x << 1;
   printf("Result: %d\n", result);
   return 0;
}
```

4. Conditional Operator Exploration:

```
#include <stdio.h>

int main() {
   int a = 10, b = 15;
   int max = (a > b) ? a : b;
   printf("Maximum: %d\n", max);
   return 0;
}
```

5. Operator Precedence with Function Calls: (functions are advance topic, may discuss them in small)

```
#include <stdio.h>

int foo() {
   printf("Foo called\n");
   return 5;
}

int bar() {
   printf("Bar called\n");
   return 10;
```

```
}

int main() {
   int result = foo() + bar() * 2;
   printf("Result: %d\n", result);
   return 0;
}
```

6. Complex Expression Simplification:

```
#include <stdio.h>

int main() {
   int x = 5, y = 10, z = 15;
   int result = x + y * z / (x + y);
   printf("Result: %d\n", result);
   return 0;
}
```

7. Increment/Decrement Operators Effects:

```
#include <stdio.h>

int main() {
   int x = 5, y;
   y = x++ + x;
   printf("x: %d, y: %d\n", x, y);
   return 0;
}
```

8. Logical Operators and Short-Circuiting:

```
#include <stdio.h>

int main() {
   int x = 5, y = 0;
   if (x && y++)
      printf("Inside if\n");
   printf("x: %d, y: %d\n", x, y);
   return 0;
}
```

9. Assignment Operators and Precedence:

```
#include <stdio.h>

int main() {
   int x = 5, y = 10;
   y = x += 3 * 2;
   printf("x: %d, y: %d\n", x, y);
   return 0;
}
```

10. Operator Precedence Quiz Game:

```
#include <stdio.h>
```

```c
int main() {
   int result1 = 5 + 6 / 2;
   int result2 = 2 * 3 % 4;
   printf("Result 1: %d\n", result1);
   printf("Result 2: %d\n", result2);
   return 0;
}
```

 # Operator Precedence and If-Else Tutorial

Program 1: Logical Operators and If-Else

```c
#include <stdio.h>

int main() {
   int x = 5, y = 10;

   if (x > 3 || y > 15) {
      printf("Both conditions are true.\n");
   } else {
      printf("At least one condition is false.\n");
   }

   return 0;
}
```

Program 2: Ternary Operator and If-Else

```c
#include <stdio.h>

int main() {
   int num = 7;

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

   return 0;
}
```

Output: 7 is odd.

Program 3: Compound Conditions and If-Else

```c
#include <stdio.h>

int main() {
   int age = 18;
```

```
    char gender = 'M';

    if (age >= 18 && gender == 'M') {
        printf("The person is an adult male.\n");
    } else {
        printf("The person is not an adult male.\n");
    }

    return 0;
}
```

Program 4: Nested If-Else

```
#include <stdio.h>

int main() {
    int x = 10, y = 5;

    if (x > y) {
        if (x % 2 == 0) {
            printf("x is even and greater than y.\n");
        } else {
            printf("x is odd and greater than y.\n");
        }
    } else {
        printf("x is not greater than y.\n");
    }

    return 0;
}
```