JAVA ASSIGNMENT

Masters of Computer Applications

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1) Arithmetic Operators

```java
import java.util.Scanner;

public class Arithmetic {
  public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);

    System.out.print("Enter the first number: ");
    int x = sc.nextInt();
    System.out.print("Enter the second number: ");
    int y = sc.nextInt();

    System.out.printf("x + y = %d\n", x + y);
    System.out.printf("x - y = %d\n", x - y);
    System.out.printf("x / y = %d\n", x / y);
    System.out.printf("x %% y = %d\n", x % y);

    sc.close();
  }
}
```

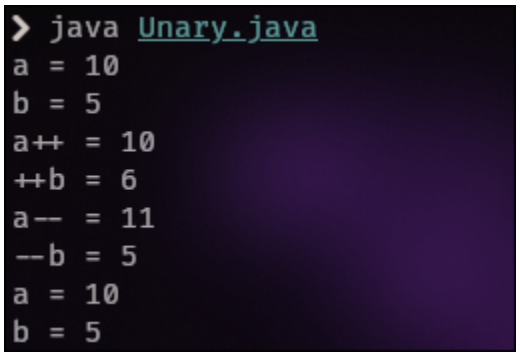
Output:

```
> java Arithmetic.java
Enter the first number: 5
Enter the second number: 10
x + y = 15
x - y = -5
x / y = 0
x % y = 5
```

2) Unary Operators

```java
public class Unary {
  public static void main(String[] args) {
    int a = 10;
    int b = 5;

    System.out.printf("a = %d\n", a);
    System.out.printf("b = %d\n", b);

    System.out.printf("a++ = %d\n", a++);
    System.out.printf("++b = %d\n", ++b);

    System.out.printf("a-- = %d\n", a--);
    System.out.printf("--b = %d\n", --b);

    System.out.printf("a = %d\n", a);
    System.out.printf("b = %d\n", b);
  }
}
```

Output:



3) Relational Operators

```java
import java.util.Scanner;

public class Relational {
  public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter a: ");
    int a = sc.nextInt();
    System.out.print("Enter b: ");
    int b = sc.nextInt();

    System.out.printf("a = %d\n", a);
    System.out.printf("b = %d\n", b);
    System.out.printf("a == b = %b\n", a == b);
    System.out.printf("a > b = %b\n", a > b);
    System.out.printf("a < b = %b\n", a < b);
    System.out.printf("a >= b = %b\n", a >= b);
    System.out.printf("a <= b = %b\n", a <= b);
    sc.close();
  }
}
```

Output:

```
> java Relational.java
Enter a: 5
Enter b: 6
a = 5
b = 6
a == b = false
a > b = false
a < b = true
a ⩾ b = false
a ⩽ b = true
```

4) Logical Operators

```java
public class Logical {
  public static void main(String[] args) {
    System.out.printf("true and false = %b\n", true && false);
    System.out.printf("true and true = %b\n", true && true);
    System.out.printf("true or false = %b\n", true || false);
    System.out.printf("true xor false = %b\n", true ^ false);
    System.out.printf("true xor true = %b\n", true ^ true);
    System.out.printf("not true = %b\n", !true);
  }
}
```

Output:

```
> java Logical.java
true and false = false
true and true = true
true or false = true
true xor false = true
true xor true = false
not true = false
```

5) Bitwise Operators

```java
import java.util.Scanner;

public class Bitwise {
  public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter a: ");
    int a = sc.nextInt();
    System.out.print("Enter b: ");
    int b = sc.nextInt();

    System.out.printf("a & b = %d\n", a & b);
    System.out.printf("a ^ b = %d\n", a ^ b);
    System.out.printf("a >> b = %d\n", a >> b);
    System.out.printf("a << b = %d\n", a << b);
    System.out.printf("a >>> b = %d\n", a >>> b);
    System.out.printf("a | b = %d\n", a | b);
    System.out.printf("~a = %d\n", ~a);

    sc.close();
  }
}
```

Output:

```
> java Bitwise.java
Enter a: 5
Enter b: 3
a & b = 1
a ^ b = 6
a >> b = 0
a << b = 40
a >>> b = 0
a | b = 7
~a = -6
```