

# Basic Java Programming Syntax Cheat Sheet

## Data types:

- *byte, short, int, long*: integer values
- *double, float*: decimal values
- *boolean*: a true or false value
- *char*: a single character value
- *String*: a series of characters; denoted by quotations

## Operators:

- *Arithmetic Operators*: +, -, \*, /; (returns the result of the operation)
- *Relational Operators*: (returns a boolean as to whether the statement is true)
  - == (equal to)
  - != (not equal to)
  - > (greater than)
  - < (less than)
  - >= (greater than or equal to)
  - <= (less than or equal to)
- *Logical Operators*: (returns a boolean as to whether the statement is true)
  - && (both are true)
  - || (at least one is true)
  - ! (invert the boolean)
- *Assignment Operators*: (sets one value to another value)
  - = (sets the value on the left to the value on the right)
  - += (same as  $x = x + a$ )
  - -= (same as  $x = x - a$ )
  - \*= (same as  $x = x * a$ )
  - /= (same as  $x = x / a$ )

## Conditionals:

Conditionals do a certain thing if a condition is true

- *if statements*

```
if (A)
{
    // Do something if A is true
}
else if (B)
{
    // Do something if A is false, but B is true
}
else {
    // Do something if A and B are both false
}
```

- *switch case*

```
switch(variable) {
    case a:
        // Do something if variable equals a
        break;
    case b:
        // Do something if variable equals b
        break;
    case c:
        // Do something if variable equals c
        break;
    default:
        // Do something if variable doesn't equal any of the cases
        break;
}
```

## Loops:

Loops repeat a certain block of code until a certain condition is reached

- *while loops*

```
while(A) {
    // Repeat the code in here only when A is true
}
// When A stops being true, the code here is executed, and the loop is exited
```

- *for loops*

```
// At the start of the loop, a new i is created
for(datatype i = value; condition; do something to i) {
    // Before every loop, condition is checked to be true.
    // If condition is true, this code is executed
    // At the end of this code, something is done to i
}
// When condition stops being true, the loop is exited
```