Data Types

byte	8 bits	0
short	16 bits	0
int	32 bits	0
long	64 bits	0L
boolean	bit	false
char	16 bit unicode	x
float	32 bit decimal	0.0f
double	64 bit decimal	0.0d

(='w')/

```
Array : collection of values
String : immutable, arranged set of characters
Class : Blueprint of the object
Java Script : public class Main{
                                    -
                    public static void main(s tring[] args){
                                    -
                     }
                                    -
       }
```

\(='w'=)/

byte[-128 to 128][-2 ^{7} to ^{2}7 -1]
short[-2 ^{15} to ^{2}15-1]
int[-2 ^{31} to ^{2}31-1]
long[-2 ^{63} to ^{2}63-1]

Algorithm

An algorithm (pronounced AL-go-rith-um) is a procedure or formula for solving a problem. Just like you have a recipe to cook food that has step-b y-step instru ctions, in progra mming you have an algorithm that has step-b y-step instru ctions.
Examples:
Sorting Algorithm
Swap Algorithm
Search Algorithm

Algorithm (cont)

> Simple Algorithm to swap the values of two variables.
Examples:

```
 int a = 4;
 int b = 3;
 int temp = a; //back up the value of a
 a = b;
 b = temp;
```

Simple Algorithm to swap the values of two items in a list.
Examples:

```
 public static void swap(int[] list, int e1, int e2){
       int temp = list[e1];
       list[e1] = list[e2];
       list[e2] = temp;
 }
```

Decision Making

```
(if/else)
An if  sta tement can be followed by an option al  els - e s tat ement, which executes when the Boolean expression is false.
Examples:
if(Boo lea n_e xpr ession 1){
      //E xecutes when the Boolean expression 1 is true
}else if(Boo lea n_e xpr ession 2){
      //E xecutes when the Boolean expression 2 is true
}else if(Boo lea n_e xpr ession 3){
      //E xecutes when the Boolean expression 3 is true
}else {
      //E xecutes when the none of the above conditions is true.
}
```

Decision Making (cont)

> (Switch)
A switch statement allows a variable to be tested for equality against a list of values. Each value is called a case, and the variable being switched on is checked for each case.
Examples:

```
switch(expression){
   case value :
     //Statements
     break; //optional
   case value :
     //Statements
     break; //optional
   //You can have any number of case statements.
   default : //Optional
     //Statements
}
```