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
}
```