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(string[] 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-by-step instructions, in programming you have an algorithm that has step-by-step instructions.

Examples:

Sorting Algorithm

Swap Algorithm

Search Algorithm

Simple Algorithm to swap the values of two variables.

Examples:

Algorithm (cont)

```
  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 statement can be followed by an optional else statement, which executes when the Boolean expression is false.

Examples:

```
if(Boolean_expression 1){
   //Executes when the Boolean
expression 1 is true
}else if(Boolean_expression 2){
   //Executes when the Boolean
expression 2 is true
}else if(Boolean_expression 3){
   //Executes when the Boolean
expression 3 is true
}else {
   //Executes when the none of the
above conditions is true.
}
```

(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.

Decision Making (cont)

Examples:

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


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