Programming Paradigms

By Tyler Smith

Event Driven

One example of an event driven language is JavaScript. Event driven language means that the compiler can execute code in reaction to events. The limitation of this is that there are limitations to the event functions in JavaScript, limiting what you can do in events.

Traditional Procedural Languages

One example of procedural languages is PHP. The PHP interpreter executes commands linearly. This means that it's not possible to use more that one processor core, making the language unusable for efficient programming, but it is useful for having multiple users connected at the same time such as on web servers.

Traditional Object Oriented languages

A common example of object oriented languages is Objective C. Object orientation is the focus on the ‘object’ datatype. The object data type was built to mimic objects in real life. An object type variable has properties and methods. These are used to gather data from the object, or execute actions using the object. The limitations of this data type is that you are unable to iterate it.

Data Types

1. String

A string is a list of characters. This is how to define a string in Python:

mystring = ‘Hello World’

Strings are mostly iterable, and can be used in an array of functions. Strings in the Python interpreter can be of almost any size due to Python’s modern architecture.

2. Integer

An integer is another term for ‘Whole number’. Here’s and example of defining an integer in PHP:

```
$myinteger = 10;
```

Integers aren’t iterable, but they can be used in various maths functions, such as adding, multiplying and more. PHP also has modern arch, so integers can be of almost any length.

3. Float

A float type is a number with decimal places. This how to define a floating point in NASM x86 assembly syntax:

```
global _start
section .data
   val: dq 123.45
```

Floating point numbers are useful for data presentation. Note: Floating point numbers are never accurate. Assembly can buffer memory in any size, as the language is almost the lowest of levels.

4. Boolean

A boolean value is a variable that can only be in two forms. Usually ‘true’ or ‘false’, but can be ‘0’ or ‘1’. This is an example of setting a boolean in JavaScript:

```
var myboolean = true;
```

Booleans are useful to return from functions and to test for in conditions. Booleans in Javascript use a single bit. A 1 or 0.

5. Array

An array is a variable that can contains multiple values. Here is an example of an array in C:

```
int myarray[1] = {0, 1};
```

Arrays are very much iterable, and are useful to store lots of information that is editable and flexible within programming. In C, the number of bytes in the array is defined by the statement. In this case, there are two buffers of a single bit.

6. Associative Array

An associative array is another type of array that can contain string type definitions. Here is an example of an Associative array in Ruby:

myassociativearray = {'Hello' => ‘World’, 'Answer' => 42}

This data type is useful for categorizing data, but still passing it as a single variable, similar to an object.

Conclusion

Choosing a data type is important to a programmer as a datatype that can store the required information efficiently. When an appropriate data type is chosen, code is easier to read, programs are faster, and storage is more efficient. For example: Trying to store a time as a string would take a lot of code to convert it back to a format that we can use (Depending on the string format).