WCL: Website Creation Language

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Introduction

Websites today comprise the largest source of accessible information. Additionally, they provide the easiest and most cost-effective method of publishing information to a broad and geographically distant audience. As such, the ability to quickly and efficiently publish web pages is a critically important skill for anyone wanting to display his or her information in public view.

Currently, the underlying language of all web pages is HTML (Hyper Text Markup Language) or some extension of that (such as DHTML and XHTML). In addition, scripting abilities, such as JavaScript and VB Script, have been introduced into most web browsers to extend the functionality and usefulness of web pages. Even entire languages such as Java and php can be embedded into web pages to improve their range of functionality.

Nevertheless, creating web pages for large projects still remains a somewhat tedious, if not outright difficult, job for the inexperienced web designer. To ease this job for typical computer programmers, we have created a new language, Website Creation Language (WCL).

Goals of WCL

WCL is intended for the novice or experienced computer programmer, whether or not he or she is experienced creating web pages with HTML. The main goals are: ease-of-use, efficiency and robustness.

Ease-of-Use

WCL is intended to be intuitive to the typical computer programmer or anyone else familiar with basic programming constructs. The notions of variables, types, keywords, objects, and control flow sequences are all integral parts of our language. Basic functions for actions such as table, link, and image creation are intuitive and clearly identifiable. An individual with experience coding in other languages should quickly become comfortable creating websites with WCL.

Efficiency

In order to help programmers create web pages faster, WCL facilitates the combination and reuse of web components. This allows the programmer to create templates that can be used to create innovative web designs with a consistent look and feel.

Robustness

Having primitive date types that relate directly to HTML constructs allows us to ensure the resulting HTML code is valid in accordance with the W3C specification. This would eliminate the most tiring and time consuming debugging process of web applications. It will also ensure that the HTML output is compatible with all major browsers.

Main Language Features

In this section we describe some of main features in our language.

Elemental data types

Our language supports three primary data types common to general programming languages: integers, floats and strings. The character data type is omitted, as its use would be quite rare. A string of one character can be used in its place. We also include data types for common HTML elements, such as tables, images and paragraphs.

Basic Operations

Basic mathematic integer, double, and string operations are available for use.

Program Control Flow

Flow of control constructs, such as conditional "if" and while loop structures are included..

Sample Syntax

Here is a sample of code that creates an HTML table:

```
// Create a table
Table myTable = new Table();

// Declare some variables
int i = 0;
int j = 0;
int num = 0;
int size = 10;
int tmpArray[size];

// Fill the table with values
while (i < 5) {

    // Initialize array with values
    j = 0;
    while (j < size) {
        if (j % 2 == 1) {
            num = j * i;
        }
        else {
            num = j * i * 2;
        }
        tmpArray[j] = num;
        j = j + 1;
    }

    // Add the array to the table
    myTable.add(tmpArray);
    i = i + 1;
}
```

The resulting table will look similar to the following when displayed through a web browser:

0	0	0	0	0	0	0	0	0	0
0	1	2	3	4	5	6	7	8	9
0	2	4	6	8	10	12	14	16	18
0	3	6	9	12	15	18	21	24	27
0	8	16	24	32	40	48	56	62	70