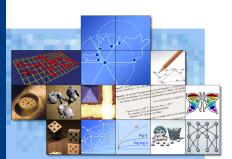


EScript

Short Presentation of a Scripting Language



May 11, 2012 Benjamin Eikel

EScript Benjamin Eikel

Overview



- 1 Introduction
- 2 Data Types
- 3 Control Structures
- 4 Other Features
- 5 Examples

Introduction **Overview**



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Introduction What is EScript?





- is an object-oriented scripting language.
- is compiled and executed by a virtual machine.
- has a similar syntax to C.
- was developed to use C++ objects from scripts easily.

Introduction What is EScript?





- is released under a free software license.
- is available from http://escript.berlios.de/.
- can be built using CMake.
- has a command-line interpreter.
- can be used internally by other C++ projects (e.g. PADrend).

- EScript files should have the extension .escript.
- The EScript parser analyzes the script file line by line.
- A simple script:

```
out("Hello, world!\n");
```

Data Types Overview



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Data Types Simple Types



Number

27.4

0x1a

25 / 5

3 + 4

String

"an"

'example'

"hello" + ', ' + "world"

Bool

true

false

Void

void

Data Types Variables, Comments



```
var
/*
   Declaring a variable is done using the keyword
   "var", an identifier, an equation sign, and an
   expression on the right side. The type of the
   variable is deduced from the expression on the
   right side.
var xPos = 500 - 80 / 2;
// The variable "message" will be of type String
var message = "Please click the button";
// Dynamically change the type to Number
message = 5;
```

```
fn

var square = fn(num) {
    return num * num;
};

var a = square(5);
```

var b = square (4.2);

Array

```
var numbers = [3, 23, 7, 3, 100, 1, 35];
var colors = ["red", "green", "blue"];
```

Map

```
var fruits = {
    "lemon" : "yellow",
    "cherry" : "red"
};
fruits["apple"] = "green";
```

ExtObject

```
var car = new ExtObject();
car.color := "red";
car.speed := 190;
car.outputDesc := fn() {
    out("This is a ", this.color, " car ");
    out ("with top speed ", this.speed, ".\n");
car.speed = 185;
car.outputDesc();
```

Output: This is a red car with top speed 185.

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Type

```
var Shape = new Type();
Shape.color := "white";
// New type that is derived from Shape
var Polygon = new Type(Shape);
Polygon.numVertices := 3;
// New type that is derived from Shape
var Circle = new Type(Shape);
Circle.radius := 0;
var circle = new Circle();
circle.color = "red";
circle.radius = 5;
```

Control Structures Overview



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```
if
```

```
var result = /* some function */;
if(result) {
    out ("Success");
 else
    out ("Failure");
var num = /* some number */;
if (num < 0) {
    out("Too small");
 else if(num >= 0 && num <= 100) {
    out ("Range okay");
 else
    out ("Too large");
```

Control Structures Conditionals (2)



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? (conditional operator)

```
var num = /* some number */;
var positive = (num > 0) ? true : false;
```

Control Structures Conditionals (2)



15

? (conditional operator)

```
var num = /* some number */;
var positive = (num > 0) ? true : false;
```

Note: There is no switch in EScript.

Control Structures Loops (1)



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while

```
var tasks = [/* some tasks */];
while(!tasks.empty()) {
    var firstTask = tasks.front();
    tasks.popFront();
    // do something with first task
}
```

Control Structures **Loops (2)**



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for

```
var sum = 0;
for(var i = 0; i < 100; ++i) {
    sum += i;
}
out("Sum of numbers: ", sum, "\n");</pre>
```

foreach

```
var chars = ["a", "c", "k", "b", "d", "x", "j"];
foreach(chars as var c) {
    if(c == "x") {
        out("Character \"x\" found.");
        break;
    }
}
```

Other Features Overview



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Call a function on another object.

Example

```
var printOut = fn()
    out("I am a " + this.color + " node.\n");
};
var nodeRed = new ExtObject();
nodeRed.color := "red";
var nodeBlack = new ExtObject();
nodeBlack.color := "black";
var printOutRed = nodeRed -> printOut;
var printOutBlack = nodeBlack -> printOut;
printOutRed(); // Output: I am a red node.
printOutBlack(); // Output: I am a black node.
```

Example

```
var Polygon = new Type();
Polygon.vertices @(private, init) := Array;
Polygon.shapeType @(const) := "Polygon";

Polygon.getNumVertices := fn() {
    return this.vertices.count();
};

var polygon = new Polygon();
polygon.getNumVertices();
```

Examples Overview



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Factorial: $n! = 1 \cdot 2 \cdot 3 \cdot \ldots \cdot n$ 0! = 1

Example

```
var factorialRecursive = fn(Number n) {
    return (n == 0) ? 1 : thisFn (n - 1) * n;
var factorialIterative = fn(Number n) {
    var product = 1;
    for (var i = 2; i <= n; ++i) {</pre>
        product *= i;
    return product;
outln(factorialRecursive(6)); // Output: 720
outln(factorialIterative(7)); // Output: 5040
```

Example

```
var Player = new Type();
Player.x @(private) := 0;
Player.y @(private) := 0;
Player.move := fn (Number dx, Number dy) {
    this.x += dx;
   this.y += dy;
Player.printPos := fn() {
    outln("Position: (", this.x, ", ", this.y, ")");
};
var playerA = new Player();
playerA.move (5, 7);
playerA.printPos(); // Output: Position: (5, 7)
```



Thank you for your attention!



Benjamin Eikel

Heinz Nixdorf Institute & Department of Computer Science University of Paderborn

Address: Fürstenallee 11

33102 Paderborn

Germany

Phone: +49 5251 60-6452 Fax: +49 5251 60-6482 E-mail: eikel@upb.de

Web: http://wwwhni.upb.de/en/alg/

Benjamin Eikel holds a scholarship of the International Graduate School Dynamic Intelligent Systems

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