



Jack IDE Tutorial

This program is part of the software suite
that accompanies the book

The Elements of Computing Systems

by Noam Nisan and Shimon Schocken

MIT Press

www.idc.ac.il/tecs

This software was developed by Uri Zeira and Oren Cohen at the
Efi Arazi School of Computer Science at IDC

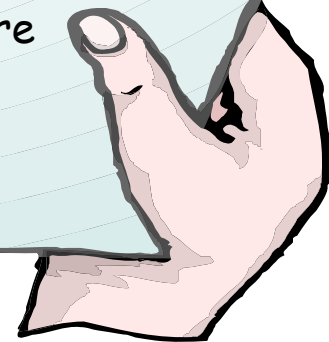
Background

The Elements of Computing Systems evolves around the construction of a complete computer system, done in the framework of a 1- or 2-semester course.

In the first part of the book/course, we build the hardware platform of a simple yet powerful computer, called Hack. In the second part, we build the computer's software hierarchy, consisting of an assembler, a virtual machine, a simple Java-like language called Jack, a compiler for it, and a mini operating system, written in Jack.

The book/course is completely self-contained, requiring only programming as a pre-requisite.

The book's web site includes some 200 test programs, test scripts, and all the software tools necessary for doing all the projects.



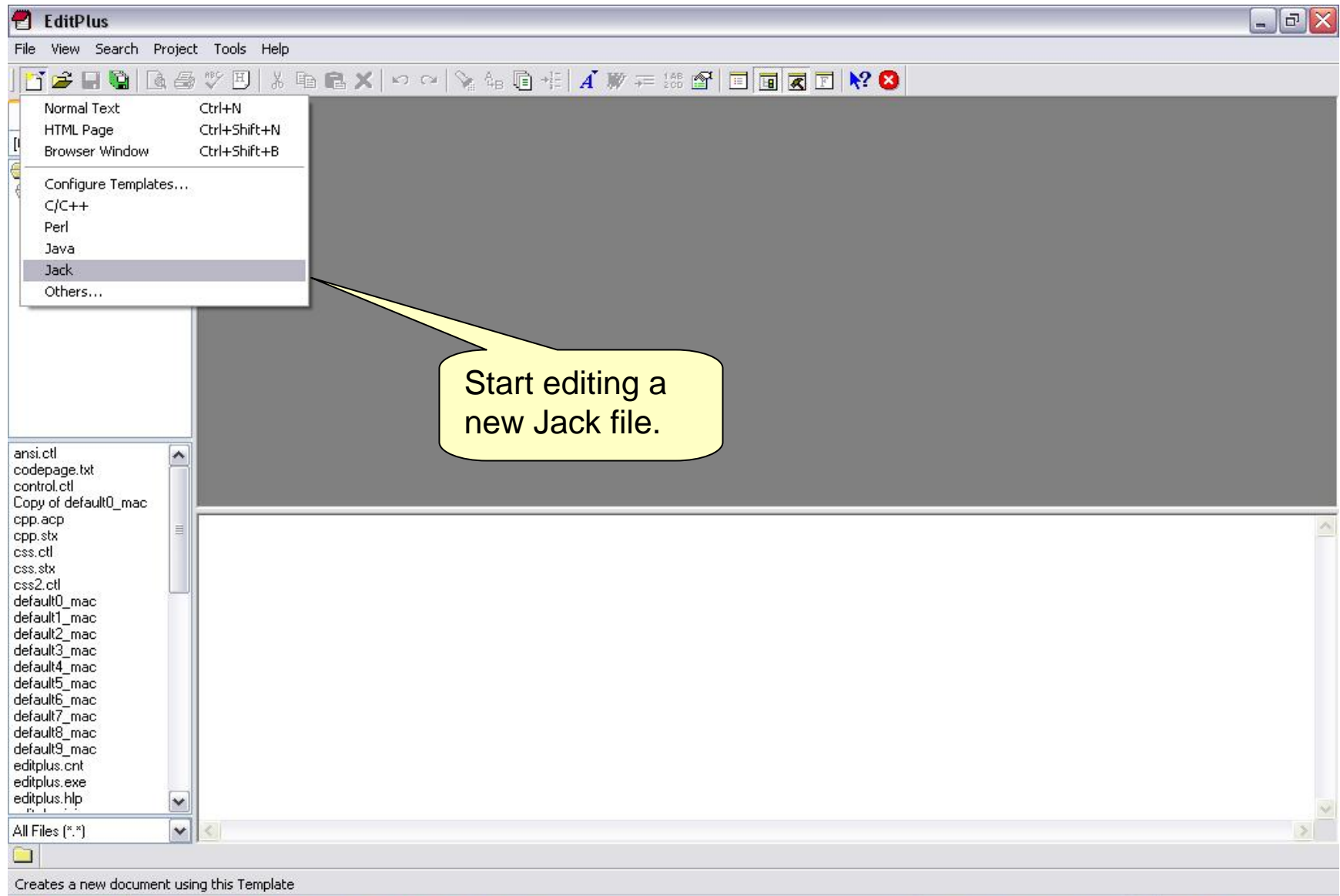
Overview

- Jack programs can be written and compiled in two ways:
 - Using a plain text editor and the supplied compiler (`tools/JackCompiler`)
 - Using the Jack IDE, which features a Jack-oriented text editor and integrated access to the same compiler.
- **Compatibility:**
 - The current version of the Jack IDE runs only on Windows.
 - A Linux version is not yet available.
- **Terms:** the Jack IDE is based on a commercial tool called Edit Plus (which has nothing to do with us). You can use the Jack IDE freely for 30 days. If you want to continue to use it, you will be asked to buy a license from Edit Plus (\$30). This will happen automatically.

Installation

- The complete Jack IDE is shipped in a single `JACK_IDE_SETUP.msi` installer file
- The installer allows you to either install or uninstall the Jack IDE on your computer.
- To install or uninstall, double-click the `.msi` file and follow the instructions.

Getting started



Editing and compiling

Jack user toolbar:

- Compile the current file (CTRL-1)
- Compile the current directory (CTRL-2)

(If this toolbar is not visible, see next slide.)

Current directory

Current file

Editing area (Jack source code)

```
44
45 // Deallocates the object
46 method void dispose() {
47     do bat.dispose();
48     do Memory.deAlloc(this);
49     return;
50 }
51
52 // Returns the single instance
53 function PongGame getInstance() {
54     if (instance = null) {
55         let instance = PongGame.new();
56     }
57
58     return instance;
59 }
60
61 // Starts the game. Handles inputs from the user that controls
62 // the bat's movement direction.
63 method void run() {
64     var char key;
65
66     while (~exit) {
67         // waits for a key to be pressed.
```

----- Jack compiler (file) -----
Output completed (0 sec consumed)- Normal Termination

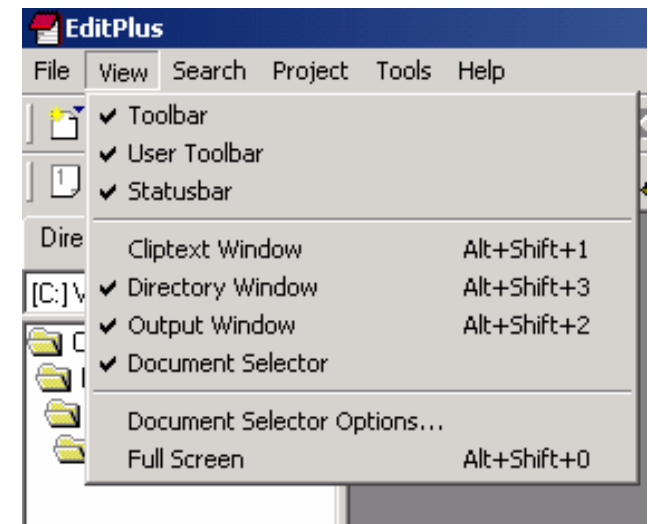
Error and status messages from the compiler

Files currently open.

PongGame.jack Main.jack Memory.jack

Correct configuration:

1. From the VIEW menu, ensure that the “user toolbar” option is checked.



2. From the TOOLS menu, ensure that the “group 2” option is checked.+

