B COMPILER
PROJECT REPORT

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CS 4090
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<u>SUMMARY</u>

The purpose of this assignment was to create a compiler that could take a program written in a subset of C, called B, and generate the corresponding Java Bytecode to perform the same actions as the .b program.

B is a fairly sparse language, having only one data type (integer), only void functions who can take no parameters, and only one way to `print` data(the predefined write function).

IMPLEMENTATION

I chose to implement my compiler in Python V2.6.4, using a slew of libraries including:
- Tkinter(GUI)
- os
- sys
- shlex
- shutil
- time
- pdb(for debugging)

ERRATA

• sort.b returns incorrect data.

Actual	Expected
9	9
1234	1480
50	16
20	17
16	20
32	20

Actual	Expected
55	32
57	55
	57

- Cannot detect an illegal array declaration explicitly, however the compiler will fail upon calling toString() on a null pointer.
- NOTE: Currently, this B Compiler does not have a CLI.

EXTENSIONS

No extensions were made to the functionality of the B Programming Language.

HOW TO RUN

INSTALLING PYTHON AND TCL/TK

Since this compiler was built on Python 2.6.4, the 2.6.6 release of python is best for compilation. You can download the installation binaries at http://www.python.org/download/releases/2.6.6/

NOTE: Be sure that during the installation, you make sure TCL/TK is installed with Python.

WINDOWS

1. [Not yet implemented, follow Command Line Instructions]]In the root folder, double-click on BCompiler.exe
2. Click on the textbox which says "Click here to open file"
3. Click "Compile"
4. Upon successful compilation, you can click "Run Java" and any Java output will be displayed in the console (dark gray part of the application window).

MAC OSX

1. In the root folder, double-click on BCompiler.app

2. Click on the textbox which says "Click here to open file"
3. Click "Compile"
4. Upon successful compilation, you can click "Run Java" and any Java output will be displayed in the console (dark gray part of the application window).

UNIX/LINUX

1. In the root folder, double-click on BCompiler.sh
2. Click on the textbox which says "Click here to open file"
3. Click "Compile"
4. Upon successful compilation, you can click "Run Java" and any Java output will be displayed in the console (dark gray part of the application window).

COMMAND LINE

1. Navigate to the Sources folder.
2. type `python BCompiler.py`
3. Click "Compile"
4. Upon successful compilation, you can click "Run Java" and any Java output will be displayed in the console (dark gray part of the application window).