CS321: Compilers  
Java ByteCode Generation

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# tEAM

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## Data structures

-There are three structs used for types:

1. Exp:

* it contains (int type, vector<string \*> \*code, vector<string \*> \*next) that this expression has.
* it used for EXPRESSION and SIMPLE\_EXPRESSION.

1. Factor:

* it contains (int type, vector<string \*> \*code)
* it used for TERM and FACTOR.

1. Block:

* it contains (int l\_id, vector<string \*> \*code, vector<string \*> \*next) that this block has.
* It used for METHOD\_BODY, STATEMENT\_LIST, STATEMENT, IF, WHILE, DECLARATION and ASSIGNMENT.

-Enum {INT\_T, FLOAT\_T, BOOL\_T, ERROR\_T} for type of the ID.

-Map for symbol table save symbol, its number, type and block id as <string, tuple<int, int, int>>.

## Main files 🡨 need to other files if exist

* LEX.l: It’s the lexical analyzer which return token type.
* SYN.y: It contains grammar rules and semantic actions to produce bytecode
* Makefile: It’s the main file which runs the project.

## Algorithms and techniques 🡨 need to update

* IF-ELSE
* WHILE
* FOR
* BOOLEAN EXPRESSION

## Comments on tools 🡨 need to add jasmin

* Flex: It represented in .l file which contains the lexical rules. It takes the input code and returns tokens which used later by bison.
* Bison: it represented in .y file which contains context free grammer and semantic rules. It takes tokens from flex and returns java bytecode.
* Jasmin:

## Explanation of functions 🡨 need to update

* Main()

It reads the code in the input file and parse it.

* Print\_code(vector<string \*> \* code)

Takes a list of strings containing the bytecode and print it to the output file.

## Assumptions 🡨 need to update

* Ability to allow both internal and external users to access the application without downloading any software
* Ability to interface with the existing data warehouse application
* Ability to incorporate automated routing and notifications based on business rules

## Sample run 🡨 need to update