Group 17:Java Compiler

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Aim of the project

The aim of the project was to develop a compiler for Java which supports object oriented features of java like inheritance,polymorphism and encapsulation,apart from the various statements,operators and data types present in Java.

Achievement

- Data types:basic data types(byte,short,int,long,char,float,double),derived data types(array,object)
- Tokens:Literals(integer,floating point and string),identifiers,keywords,comments(multi line and documentation comment supported)
- Operators:all arithmetic,logical and relational operators that java supports,ternary operator(short circuit evaluation supported;operator overloading supported)
- Statements:implicit type conversion for basic types,print statements,assignment(single and multiple),if statement,if else statement,while,for and do while loops,switch(nested statements supported wherever applicable)
- Functions:arguments and return types consisting of basic and derived types(overloaded functions supported;recursive functions supported;call through super keyword supported)
- OOP Features:interfaces(limited support),classes,objects,inheritance,polymorphism(Liskov substitution principle supported),access modifiers(private and public),static and non static member variables and functions,default and parameterised constructors(explicit constructor invocation supported)

What was not achieved

- Garbage collection
- Nested classes
- String operations

Contribution of the group members

- Abhijit Sharang–lexical analysis,syntax analysis,semantic analysis,code generation,debugging at all stages(50%)
- Akshay Kumar—lexical analysis,syntax analysis,debugging at other stages(20%)
- Kumar Rajput–syntax analysis,code generation(20%)
- Sateesh Kumar Meena–debugging,lexical analysis(10%)

Others

The complier was generated using `lex` and `bison`.The language used for the development was C++