CS-252 - Sec 01 - APLP
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Project Title: Type Inferencing in JavaScript

Milestone1 Report Document:

Implementation Status:

1. I will be using esprima/Reflect libraries for parsing JS code and to construct AST.
2. I will also generate tokens for the JS code for which type inferencing is to be done.
3. Current status for above two steps is, I have tried different API's provided by the packages mentioned above (Esprima and Reflect) and they are giving output as expected.
4. After this my main task for implementation work would be, to parse AST and tokens that are generated in steps 1 and 2, and infer types for all the elements.
5. Currently I am trying to support basic elements of JS such as integer code with simple variable declarations, array declarations, function declarations.
6. Further I will try to extend the implementation for higher elements as well.

Thesis Status:
1. I have figured out that both Esprima and Reflect packages use spidermonkey Parse API's and work on the same lines to parse JS code and construct AST.
2. I am also trying to understand paper written on CFA2: A CONTEXT-FREE APPROACH TO CONTROL-FLOW ANALYSIS[1] and another paper named Fast and Precise Hybrid Type Inference for JavaScript[2].
3. If time permits I will also be looking forward to explore Closure Compiler by Google and Flow JS.

References:
[1] B. Hackett and S. Guo. "Fast and precise hybrid type inference for JavaScript". Presented at ACM SIGPLAN Notices. 2012, Available:
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.365.9413&rep=rep1&type=pdf.
[2] D. Vardoulakis and O. Shivers. "CFA2: A context-free approach to control-flow analysis," in Programming Languages and SystemsAnonymous 2010, .