Project Candidates
SNU 4541.664A Program Analysis
Spring 2006

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Project due: 6/19 24:00 by email to TAs

You may choose one of the two topics for the project. You have to submit your design document and its implementation source to TAs.

Exercise 1 "Interval Analysis"

Same as Homework 6 but for a C-, which is an extension of C-- with:

$$\begin{array}{rcl} E & \rightarrow & \cdots \\ & | & \texttt{malloc}\ E \end{array}$$

The semantics of `malloc` E is allocating a memory block of size E and return its starting address. If E's value is non-positive integer, the semantics is undefined. One unit of the allocated memory is for storing one integer. Dynamically allocated address can be added by an integer value to return a shifted address. □

Exercise 2 "Effect Inference"

Implement the effect inference system in the lecture slide 18. The effect inference must be for an extended target language that include recursive functions and let-expression:

$$\begin{array}{rcll} e & \rightarrow & n & \text{integer} \\ & | & x & \text{variable} \\ & | & \lambda x.e & \text{function} \\ & | & \texttt{rec}\ x'\lambda x.e & \text{recursive ftn } x' \\ & | & e\ e & \text{application} \\ & | & e\ \texttt{+}\ e & \text{addition} \\ & | & \texttt{let}\ x\ \texttt{=}\ e\ \texttt{in}\ e & \text{local binding} \end{array}$$

□