Homework 1
AAA 616: Program Analysis, Fall 2019

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Due: 10/29 (in class)

Problem 1 Implement a numerical analysis for the while language:

```
type var = string
type aexp =
  | Int of int
  | Var of var
  | Plus of aexp * aexp
  | Mult of aexp * aexp
  | Minus of aexp * aexp

type bexp =
  | True
  | False
  | Eq of aexp * aexp
  | Le of aexp * aexp
  | Neg of bexp
  | Conj of bexp * bexp

type cmd =
  | Assign of var * aexp
  | Skip
  | Seq of cmd * cmd
  | If of bexp * cmd * cmd
  | While of bexp * cmd
```

This is an open-ended problem, so you can freely implement the analyzer as you like. For example, you can choose intervals or octagons as abstract domains. In class (10/29), prepare a 10-minute presentation about your implementation with a demo.