

CS 6363: Advanced Compiler Construction

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You Name:

1. Given the following code.

```
SUBROUTINE FOO
    COMMON Z
    INTEGER A
    A = 10
    S0: CALL P(A,Z)
END

SUBROUTINE P(X,Y)
    INTEGER X,Y
    X = X + 1
    S1: Q(X,Y)
END

SUBROUTINE Q(X, Y)
    IF X .LE. 100 THEN
        Y = Y + X
    ENDIF
END
```

- (a) Compute $\text{GMOD}(\text{FOO})$, $\text{GMOD}(\text{P})$, $\text{GMOD}(\text{Q})$, $\text{MOD}(\text{S1})$ and $\text{MOD}(\text{S0})$, i.e., the set of variables modified by each procedure and by the call site S0.
- (b) Compute the Jump functions for call sites S0 and S1. Apply constant propagation to compute the possible values for each incoming parameter of procedures.