Handout 1   **Simplified IAS instruction set**
COSC 2150

Instruction Type	Symbolic Rep.	Description
Data Transfer	Load MQ	Transfer contents of register MQ in the Accumulator
	Load MQ,M(X)	Transfer contents of Memory location to register MQ
	Stor M(X)	Store contents of AC to memory location X
	Load M(X)	transfer M(X) to the accumulator
	Load –M(X)	Transfer -M(X) to the accumulator
	Load |M(X)|	Transfer absolute value of M(X) to accumulator
	Load -|M(X)|	transfer -|M(X)| to the accumulator
Unconditional branch	Jump M(X)	PC = X
Condition branch	Jump+ M(X)	If accumulator is nonnegative, then PC = X
Arithmetic	Add M(X)	Add M(X) to AC
	Add |M(X)|	add |M(X)| to AC
	Sub M(X)	Subtract M(X) from AC
	Sub |M(X)|	subtract |M(X)| from AC
	Mul M(X)	Multiply M(X) by MQ and put the result in AC
	Div M(X)	Divide AC by M(X), put the result in MQ and remainder in AC
	LSH	Multiply AC by 2 (shift left one bit position)
	RSH	Divide AC by 2 (shift right one bit position)
Program markers	Halt	Stops the program
	Begin	Beginning of instructions
	.	anything following period is a comment

PC	Program Counter
IR	Instruction Register
AC	Accumulator Register
MQ	Multiplier Quotient Register

Basic Fetch-execute cycle:
1. Read in an execution from Memory listed by the PC
2. Increment the PC by 1
3. Decode the instruction
4. Execute the instruction
5. Goto step 1