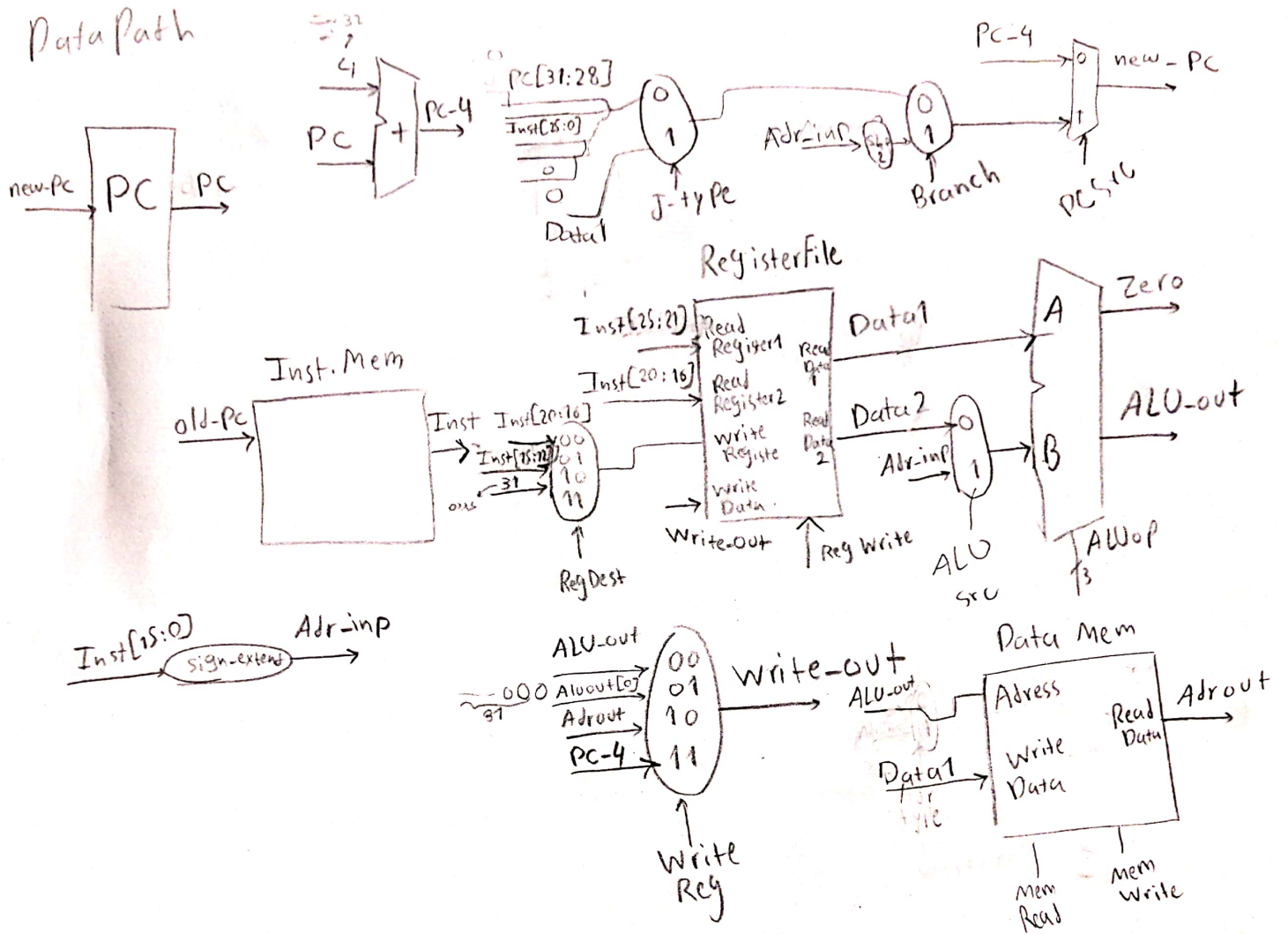


# Data Path



# Controller

$$beq = (Inst == beq)$$

$$bneq = (Inst == bneq)$$

$$x_i = x_{i-1}$$

Signal	max-index
PCSrc	3
beq	3
bneq	3
ALUSrc	2
ALUOp	2
MemWrite	3
MemRead	3
WriteReg	4
J-type	3
RegDst	2

## Forwarding Unit

if (RegWrite3 == 1 && write-address-reg == data1-reg)

forward1 = 1

elif (RegWrite4 == 1 && write-address-reg == data1-reg)

forward1 = 2

else

forward1 = 0

if (RegWrite3 == 1 && write-address-reg == data2-reg)

forward2 = 1

else if (RegWrite4 == 1 && write-address-reg == data2-reg)

forward2 = 2

else

forward2 = 0

