Student Name: İrem Zeynep Alagöz
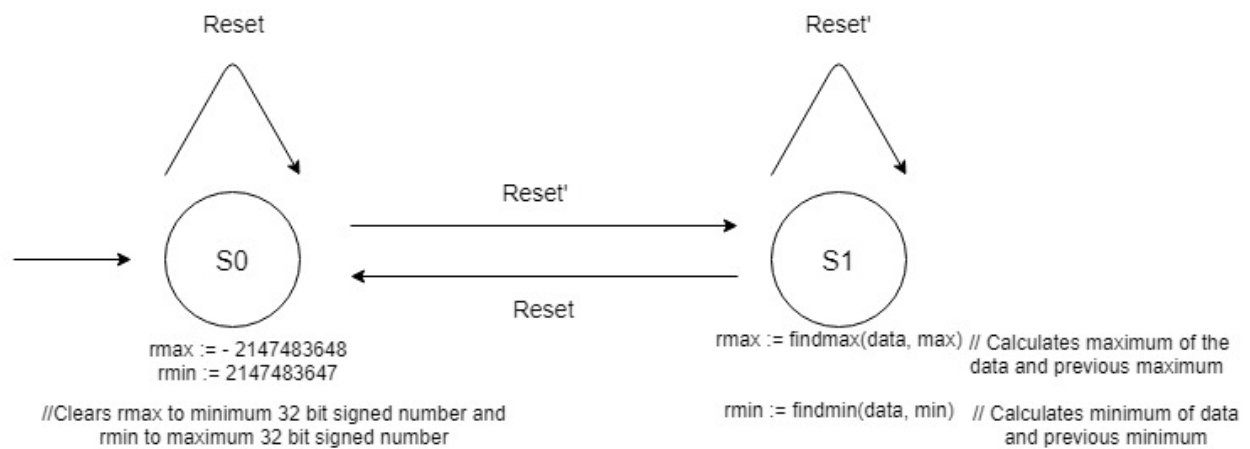
Student ID: 2018400063
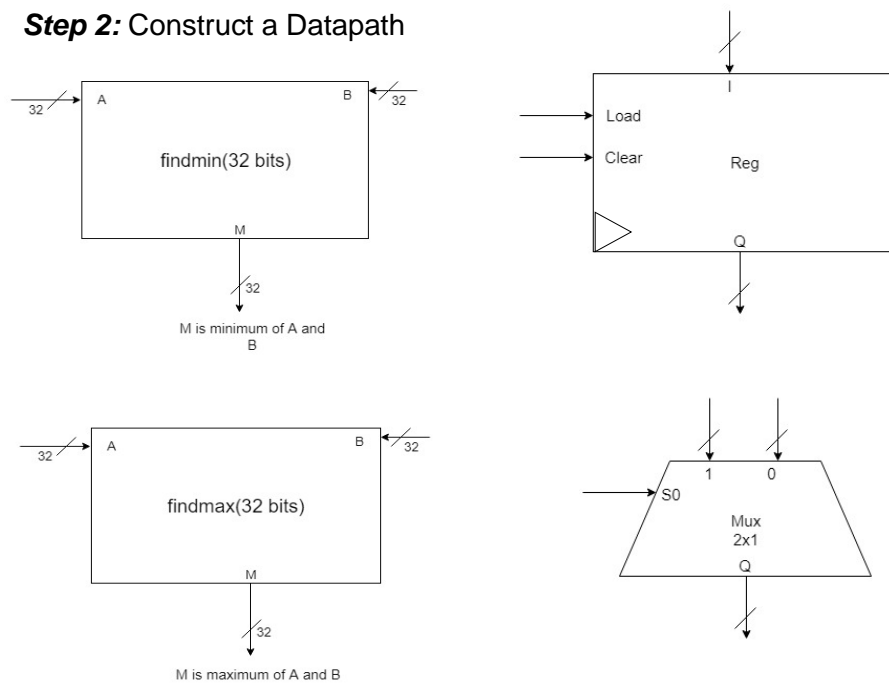
CMPE 240 Experiment 6 Preliminary Work

Reset keyword is used instead of rst.

Step 1: Capture a High Level State Machine

Input: Reset (1 bit), data (32 bits signed number)
Output: max (32 bits signed number), min (32 bits signed number)
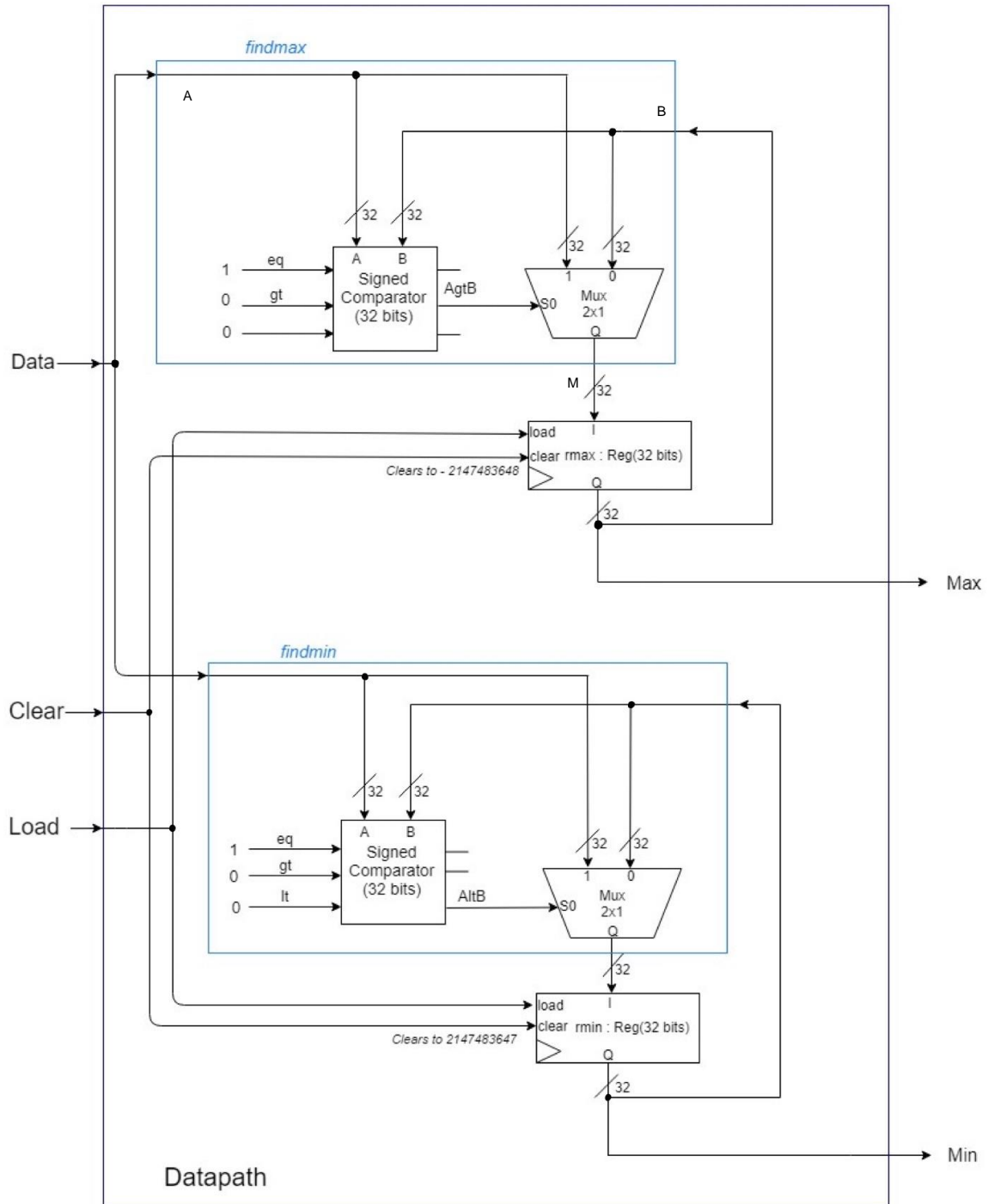Local storage: rmax (32 bits reg), rmin (32 bits reg)

Reset

Reset'

Reset'

Reset

S0

S1

rmax := - 2147483648
rmin := 2147483647

rmax := findmax(data, max) // Calculates maximum of the
data and previous maximum

//Clears rmax to minimum 32 bit signed number and
rmin to maximum 32 bit signed number

rmin := findmin(data, min)   // Calculates minimum of data
and previous minimum

Step 2: Construct a Datapath

32   A   B   32

findmin(32 bits)

M

32

M is minimum of A and
B

I

Load

Clear   Reg

Q

32   A   B   32

findmax(32 bits)

M

32

M is maximum of A and B

1   0

S0

Mux
2x1

Q

Student Name: İrem Zeynep Alagöz

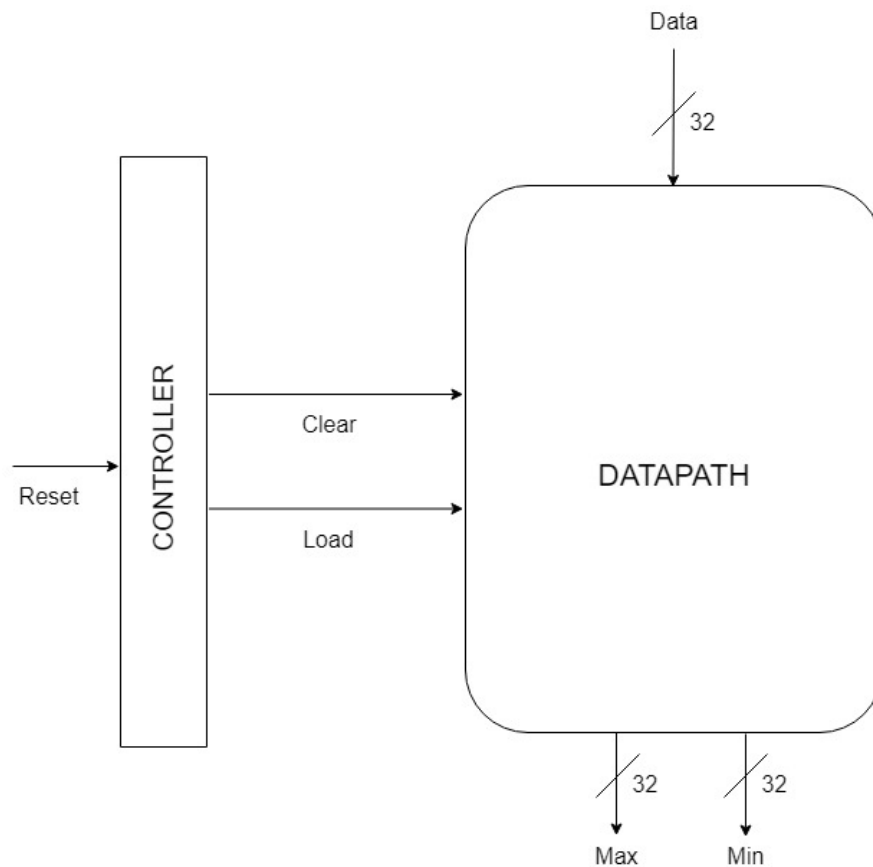**Student ID: 2018400063**

Detailed explanations of findmin and findmax components are showed.

Student Name: İrem Zeynep Alagöz

Student ID: 2018400063

Step 3: Connect the Dataptah to a Controller

Step 4: Derive Controller FSM