

Add (@ – Z) to Compare with Capital Z

AT_LEAST_A
ADD R6,R2,R4

Compare with
capital Z.

Add R4 ('@' – 'Z')
to R2 and write the
sum into R6.

Branch Unless We Have a Capital Letter

AT_LEAST_A
ADD R6,R2,R4
BRp MORE_THAN_Z

Branch forward if the
character is not a
capital letter.

What is the branch
condition?

Remember: we just
calculated (original
character – 'Z')

Time to Increment the One Letter's Histogram Bin

x00	x40	x41	x5A	x5B	x60	x61	x7A	x7B	x7F		
NUL	...	@	A	...	Z	[...	z	{	...	DEL

If the result is not positive,
the character is a capital letter.

What bin should we increment?

(Hint: R2 now holds 1 to 26 for A to Z.)

The bin at address HIST + R2.

Increment One Letter's Histogram Bin

AT_LEAST_A
ADD R6,R2,R4
BRp MORE_THAN_Z
ALPHA
ADD R2,R2,R0

Increment memory
at HIST + R2
(R0 + R2).

Where can we put
the bin pointer?

First, we need
to calculate a
bin pointer.

We only need R2 to
find the right bin.