So you survived until the end...

We are at the end of the quarter, which only means one thing: GRADES. So here we will give a brief overview of the grades. To start with we have distributions for the final exam as well as the overall scores for the quarter at the end of this document. The final exam is self explanatory, so we will focus on how the overall score for the quarter is computed.

Recall from the syllabus that there are three grading options:

- 10% Homework, 25% Midterm 1, 25% Midterm 2, 40% Final
- 10% Homework, 30% Midterm 1, 10% Midterm 2, 50% Final
- 10% Homework, 10% Midterm 1, 30% Midterm 2, 50% Final

Where the homework is computed using your best 7 homework scores (recall we drop two). Each one of these options is computed and the **best** option is **automatically** chosen for you.

To put this into some arithmetic terms, let H be the homework score (i.e., total of the best seven homeworks), $M1$ and $M2$ the raw midterm scores and F the final score. Then we compute the following:

$$\max\left\{\begin{array}{l} 10\cdot\dfrac{H}{70}+25\cdot\dfrac{M1}{55}+25\cdot\dfrac{M2+10}{55}+40\cdot\dfrac{F}{100} \\ 10\cdot\dfrac{H}{70}+30\cdot\dfrac{M1}{55}+10\cdot\dfrac{M2+10}{55}+50\cdot\dfrac{F}{100} \\ 10\cdot\dfrac{H}{70}+10\cdot\dfrac{M1}{55}+30\cdot\dfrac{M2+10}{55}+50\cdot\dfrac{F}{100} \end{array}\right\}$$

This number, which can range from 0 to 100 is your overall score for the quarter and is the **only** number that is used to determine grades. (The reason that we add 10 to $M2$ is because all of the raw scores for $M2$ were automatically bumped up by 10 to make them comparable to the first midterm.)

This number is **not** computed by gradebook (it unfortunately lacks the sophistication required for these variations). So the raw scores were downloaded and then the above computation was done for each student. You can calculate your score yourself using the information about how you did. For example if a random student, let us call him B. Stevens, were to have missed a homework but did well on the other homeworks so that $H = 63$, got a score of $M1 = 24$ on the first midterm, $M2 = 13$ on the second midterm and $F = 63$ on the final, then the three grading options above would produce 53.9, 55.8 and 55.4 respectively. So taking the largest we have that B. Stevens overall score for the quarter will be 55.8.

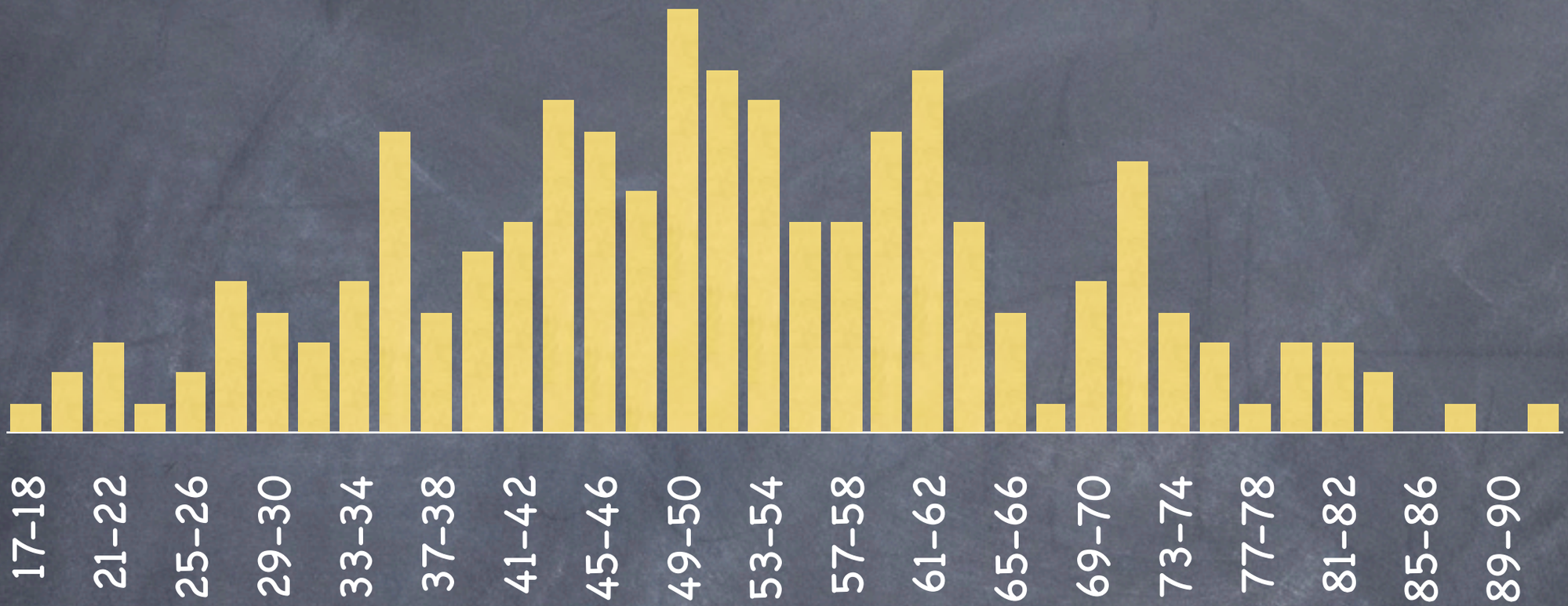
So now that we have all the scores we look at the distribution, and it is this distribution that we will use to decide how to break up the grades. In particular, we are looking for "clusters", i.e., large bumps in the distribution; students in the same cluster should receive the same grade and so using the bumps we pick some distribution.

For our class, I used the largest bump in the middle as a "B" and worked out. So if Σ is the overall score for the quarter then your grade can be determined from Σ using the following table.

Grade	Range of Σ	# students
A+	$90 \leqslant \Sigma$	1
A	$70.5 \leqslant \Sigma \leqslant 90$	32
A–	$65.5 \leqslant \Sigma \leqslant 70.5$	20
B+	$60.75 \leqslant \Sigma \leqslant 65.5$	21
B	$54.25 \leqslant \Sigma \leqslant 60.75$	51
B–	$45.5 \leqslant \Sigma \leqslant 54.25$	44
C+	$44 \leqslant \Sigma \leqslant 45.5$	1
C	$38 \leqslant \Sigma \leqslant 44$	23
C–	$32 \leqslant \Sigma \leqslant 38$	5
D	$27 \leqslant \Sigma \leqslant 32$	4
F	$\Sigma \leqslant 27$	

Of course, you can also get your grade from gradebook (a much faster approach!).

Distribution of scores on the final exam



High: 91

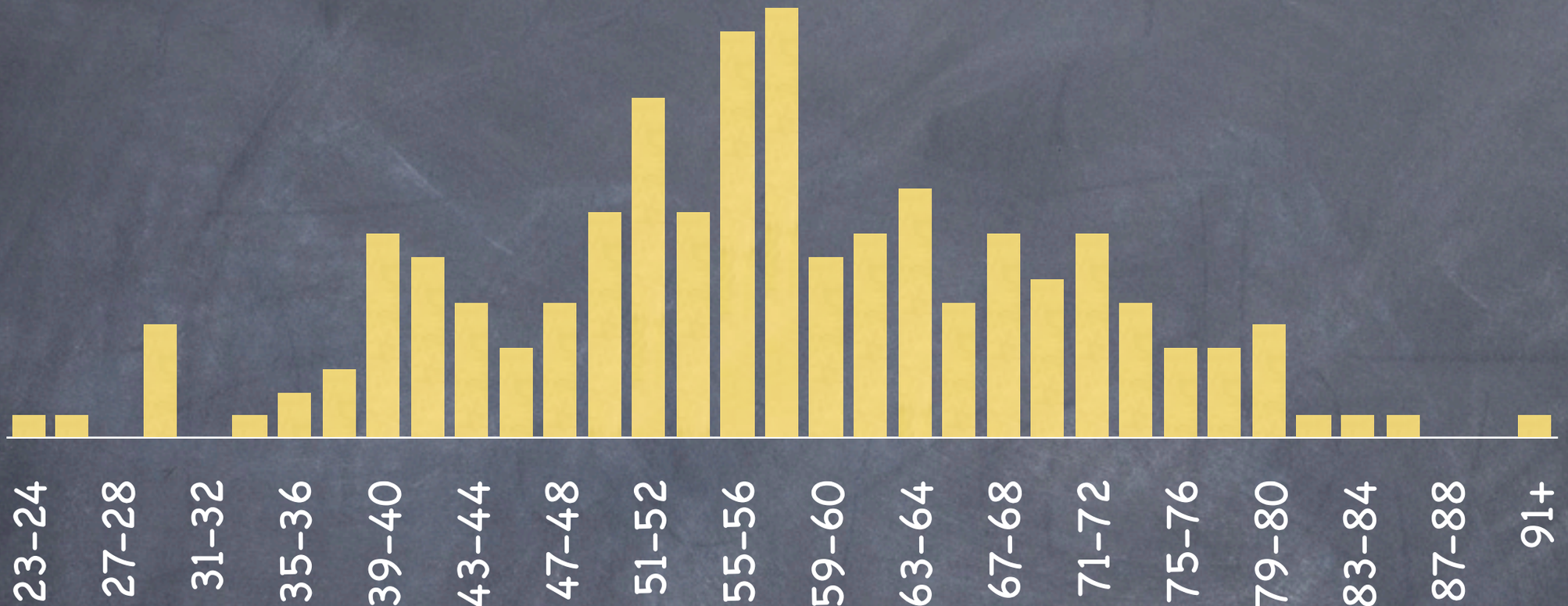
Low: 17

Median: 51

Mean: 51.6

Standard Deviation: 15

Distribution of overall scores for the quarter



High: 92.2

Median: 57

Low: 23.2

Mean: 57.3

Standard Deviation: 12.7