Section 1: Statistics & Linear Algebra

Question 1:
In an experiment, the depth of the lake was measured every day for approximately two years, and the historical average depth was subtracted from this value. This means that a measurement of zero is the same as the historical average value. Figure 1 is a histogram representing the collection of measurements. During the experiment, for approximately how many days was the lake at a depth above the historical average, but not more than 1 in above the average?

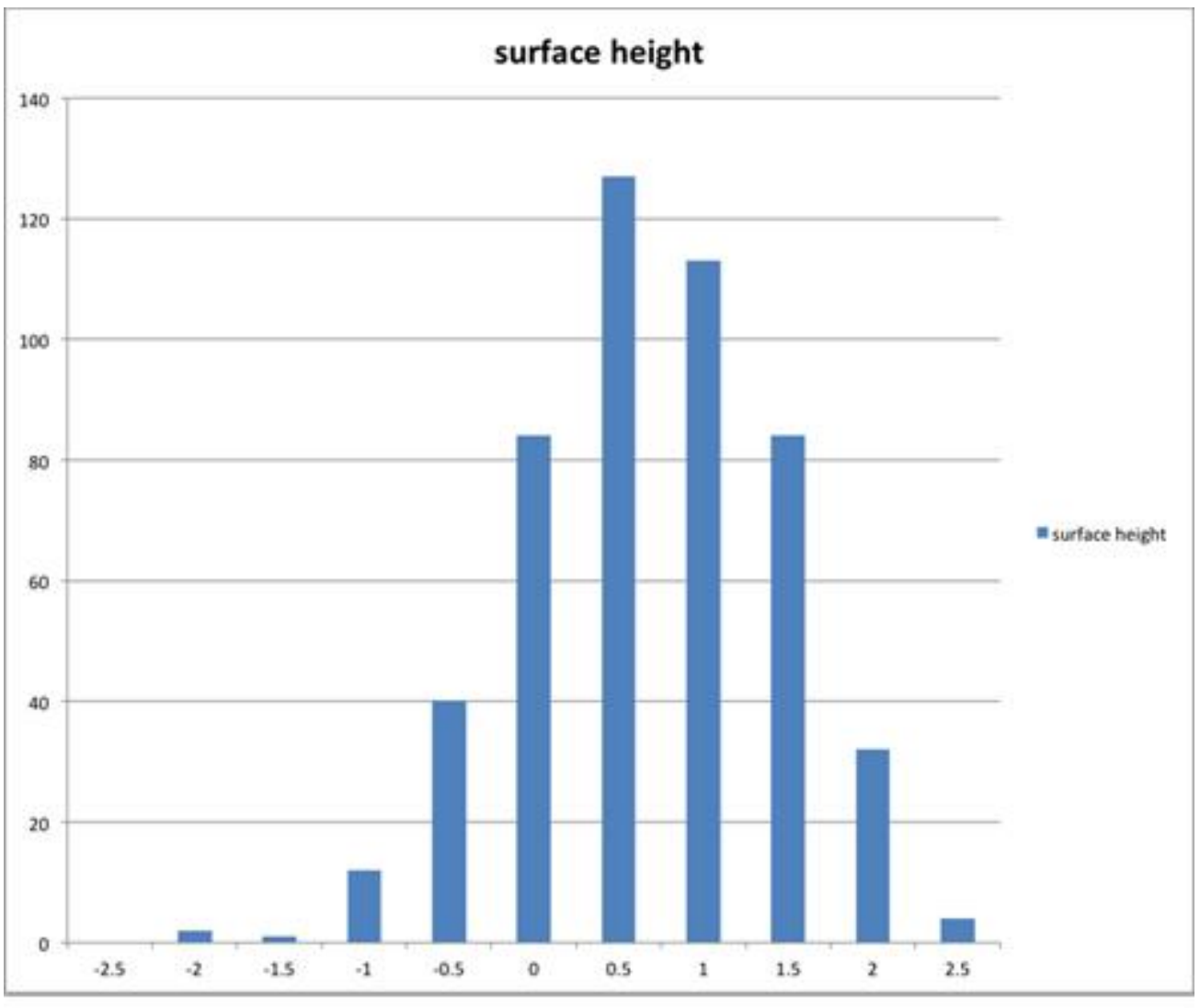

Figure 1

- 0 to 100
- 100 to 200
- 200 to 300
- 300 to 400

Question 2:
The cumulative distribution function for the lake depth experiment of Problem 1 is shown in Figure 2. During the experiment, what was the probability that the lake was deeper than the historical average when measured?

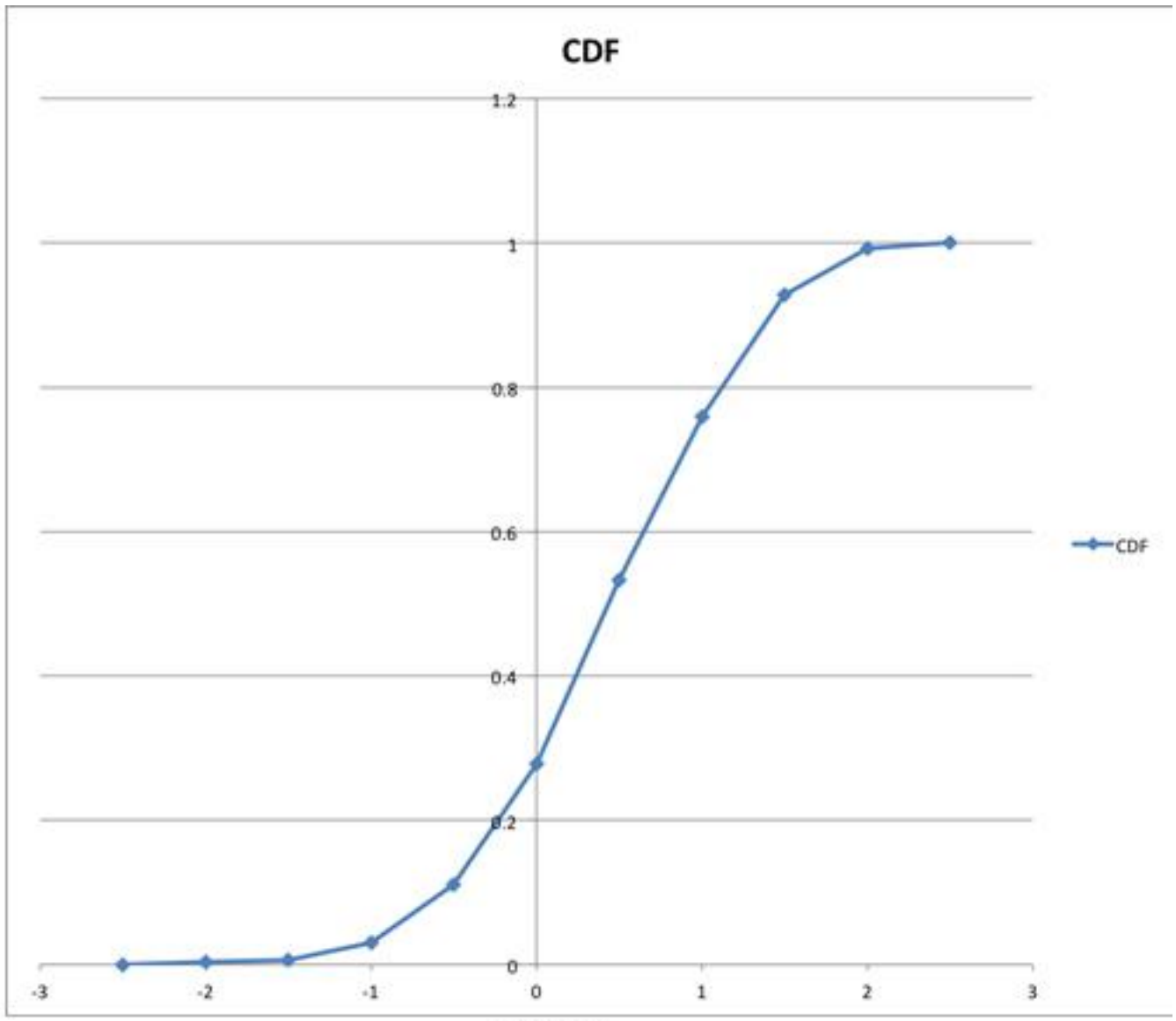

Figure 2

- Less than 20%
- 20% - 40%
- 40% - 60%
- Greater than 60%

Question 3:
For a weighted die, the probability of each outcome is located below. Which of the following correctly separates the results into quartiles?

value	probability
1	3/10
2	1/5
3	1/10
4	1/5
5	3/20
6	1/20

6	1/20

- {1}{2,3}{4,5,6}
- {1,2}{3,4}{5,6}
- {1}{2}{3}{4,5}{6}
- {1}{2}{3,4,5,6}

Question 4:

What is the value of $\begin{bmatrix} 1 & 2 \\ 2 & 5 \end{bmatrix}\begin{bmatrix} -1 \\ 1 \end{bmatrix}+\begin{bmatrix} 3 \\ 0 \end{bmatrix}$

- $\begin{bmatrix} 3 \\ 4 \end{bmatrix}$
- $\begin{bmatrix} 1 \\ -1 \end{bmatrix}$
- $\begin{bmatrix} 0 \\ 7 \end{bmatrix}$
- $\begin{bmatrix} 4 \\ 3 \end{bmatrix}$

Question 5:

What is the mean value of the following set {80, 125, 140, 85}?

- 78
- 112.4
- 107.5
- 132

Question 6:

What is the standard deviation of the set {1, 2, 3, 4, 5}?

- 3
- √2
- √15
- 4

Question 7:
If a fair die is rolled six times, which result is more likely?

a) 4, 4, 4, 4, 4, 4
b) 3, 1, 1, 4, 2, 5

- (a)
- (b)
- Both are equally likely
- Cannot be determined

Question 8:
If a fair coin is flipped three times, what is the probability of observing the sequence: heads, heads, tails?

- 1/3
- 1/8
- 3/8
- 1/4

Question 9:
Which of the following is the least likely observation?

- Normal distribution, mean 0, standard deviation 1, observed value 1
- Normal distribution, mean 0, standard deviation 2, observed value 3
- Normal distribution, mean 1, standard deviation 1, observed value -1
- Normal distribution, mean 0, standard deviation 3, observed value 4

Question 10:

Let $M = \begin{bmatrix} 1 & 3 & 5 \\ 2 & 4 & 6 \end{bmatrix}$, $N = \begin{bmatrix} 0 & 1 \\ 1 & 0 \\ 0 & 1 \end{bmatrix}$.

$M \cdot N$ is:

- $\begin{bmatrix} 3 & 6 \\ 4 & 8 \end{bmatrix}$
- $\begin{bmatrix} 2 & 4 & 6 \\ 1 & 3 & 5 \\ 2 & 4 & 6 \end{bmatrix}$
- $\begin{bmatrix} 3 & 4 \\ 6 & 8 \end{bmatrix}$
-

$$\begin{bmatrix} 2 & 1 & 2 \\ 4 & 3 & 4 \\ 6 & 5 & 6 \end{bmatrix}$$

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UNIVERSITY of WASHINGTON

Data Science Assessment Quiz

This assessment includes 30 multiple-choice questions divided into three sections: Statistics & Linear Algebra, Programming, and Databases & SQL. Applicants must earn a total score of at least 18 out of 30, with a minimum score of 6 out of 10 in each section.

Once you start the assessment, you must complete it within 90 minutes. The timer does not display on the page, so **please make sure to set your own timer** to track how much time has elapsed. After each section, you will be able to see your score, as well as your total score at the end. Please use the same email address on both your assessment and your application.

Applicant Information

Name (Last, First)

Email

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