Data Engineering Career Track: Technical Skills Survey

Overview and sample questions

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We're glad you're excited about Springboard's Data Engineering Career Track!

This document serves to provide more information about our *technical skills survey*. The *skills survey* is a major component in our admissions process, and is designed to screen candidates for the skills necessary to be successful throughout the Career Track.

Below you'll find an overview of what is assessed in the survey, and you can review sample topics and mock questions for each of the subject areas tested.

How the skills assessment works

To enroll in the Data Engineering Career Track, you'll start by filling out an initial application form; this should take ~10-15 mins and can be found <u>here</u>.

Following your application, you'll be invited to take our *technical skills survey*. The assessment is designed to be completed in one session, and typically takes students anywhere from 30 to 90 minutes.

The skills survey is comprised of two sections: 1) *Data Transformation* and 2) *Programming*.

1) **Data Transformation** – The data transformation section tests for proficiency in SQL. You'll be asked 10 multiple-choice questions and 2 coding problems. A score of 70% of higher is needed to pass.

2) **Programming** – The programming section consists of 5 multiple-choice questions, testing for OOP concepts, and 1 coding problem, which can be solved using Python. All code will be reviewed by a real human—one of our admissions representatives—to examine individual skills and ensure proper evaluation.

Data Transformation

The first portion of the assessment will test for basic database knowledge. You should expect to see questions on any of the following topics:

(Please note, the following subject areas are illustrative, and you may see topic areas for questions including, but not limited, to:)

SQL functions *– string concatenation, string slicing, add data to table*

Query results *– Group results, addition and subtraction of values, sorting results*

Sample data analysis questions

The following are sample questions demonstrating relative *skills survey* difficulty:

1. Which command is used to add a column to an existing table?
2. Which of the following is an aggregate function in SQL? *Union, Like, Group By, Max*
3. Which command is used to remove all rows from a table?
4. A SQL query automatically eliminates duplicates (True / False) ?

Programming

The second portion of the *skills survey* will test for basic programming skills in Python language. This is because the Data Engineering Career Track course will be Python-based.

You should expect to see questions on any of the following topics:

(Please note, the following programming concepts are illustrative. You may need prior understanding and practice with concepts including but not limited to:)

Programming Concepts *– Object oriented programming, loop, methods*

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Data Structures– *Lists, Dictionaries, tuples*

Sample programming problems

The following are sample questions demonstrating relative *skills survey* difficulty:

1) Pig Latin

You are given a piece of English text on a single line. Write a program that translates the text to Pig Latin. English is translated to Pig Latin by taking the first letter of every word, moving it to the end of the word, and adding "ay."

Assumptions

1. All letters are lowercase
2. Each word is separated by a single space
3. Numbers remain unchanged
4. There are no punctuation marks to worry about

Example

Input:
"the 2 quick brown foxes"

Output:
"hetay 2 uickqay rownbay oxesfay"

2) Max Difference

You're given a sequence of integers on a single line via standard input, each separated by a single space. Print the maximum difference (in absolute value) between any two numbers in the sequence on a single line on standard output.

Assumptions

1. Each number is separated by a single space.
2. The numbers can be positive, zero, or negative.

Example

Input:
1 9 2 -7 10 4 3

Output:
17

Explanation

The largest absolute difference between any two input numbers is |-7-10| = 17.

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HackerRank coding environment

Some HackerRank challenges require you to read input from stdin (standard input) and write output to stdout (standard output). If you are unfamiliar with these objects, you can check out this tutorial that walks through a sample question in the HackerRank environment.

What to do now

Think you might be ready?

Go ahead and dive in!

We encourage everyone who is interested to take the *technical skills survey* if they feel they *might* be able to pass. If you don't pass on your first try, no stress, you're always able to apply again for a future cohort after brushing up on your skills with no negative consequences.

To get started on your application, head here.

Not yet ready or need more practice?

No problem!

To build the foundation you need to tackle the technical skills survey, here are some free resources to get you skill ready:

- **SQL:** You can brush up on SQL with this free tutorial.
- **Programming:** To strengthen your programming skills, we recommend Mode's Python tutorial.

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Have more questions?

We would love to talk to you!

Feel free to reach out to our Admissions Advisors at prospect-inquiry@springboard.com, and we would be more than happy to talk through your questions and help you figure out which path is best for you!