

# Analytics Engineering Take-Home

Thank you for your interest in the Analytics Engineer position at Flex! **Please spend no more than 2 hours on this assignment;** where appropriate make use of code stubs, doc strings, and a next steps section in your README to elaborate on ways that you would continue fleshing out this assignment if you had more time.

## Assignment

This assignment is designed to evaluate your ability to work with the types of nested data structures that Flex receives from our third party partners. The data is often messy and requires basic transforms and validation before ingestion.

### 1. Data Modeling

Create an entity relationship diagram (ERD) that represents the structure for the balance sheet data provided in the JSON file attached.

A few ideas to get you started:

- Indicate any important attributes or keys
- Demonstrate the hierarchical nature of the financial data

You may use any diagramming tool of your choice (e.g., [draw.io](https://draw.io), Lucidchart, Miro) or even hand-draw the diagram and take a clear photo.

### 2. Data Validation

Using the same JSON file, write a script that validates that the roll-up calculations are correct throughout the hierarchy and reports any discrepancies found in the calculations.

A few ideas to get you started:

- Parent node values match the sum of their children
- All numerical calculations are handled appropriately

You may use any programming language to complete this exercise (note the Flex team primarily develops in Typescript, Python, and SQL).

## Submission

Please submit your solution as a link to a [Git repository](#); if you would prefer to create a private repository please share the repository with the following email addresses:

- robert@flex.one
- siggy.bilstein@flex.one
- patrick.flor@flex.one
- [ben.gilbert@flex.one](mailto:ben.gilbert@flex.one)
- [eric.goldfarb@flex.one](mailto:eric.goldfarb@flex.one)
- sergio@gaintalent.co

The submission should include:

- Responses to (1) and (2)
- Instructions on how to run your validation script
- A brief README explaining:
  - Your approach to the problem
  - Any assumptions you made
  - Any issues or inconsistencies you found in the data
  - What you would do next if you had more time

Good luck! Remember, we're more interested in your approach and thinking process than a perfect solution.

JavaScript

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```
}, { "account_id": "6450bea2-bafc-40a5-9faa-0a069669f758", "name": "Computers and Accessories", "value": "2864.64" } ] } ] } ], "liabilities": { "name": "Liabilities", "value": "1025016.99", "items": [ { "account_id": null, "name": "Current Liabilities", "value": "1014525.75", "items": [ { "account_id": null, "name": "Accounts Payable", "value": "83086.72", "items": [ { "account_id": null, "name": "Accounts Payable", "value": "83086.72", "items": [ { "account_id": "09342b42-bfa9-459c-997b-f7dac52d32a6", "name": "Accrued Rent", "value": "69723.08" }, { "account_id": "1cf73166-6064-4e55-875a-ed915e5f0cb", "name": "Payable to Character", "value": "9313.64" }, { "account_id": "51818eb7-9561-4f26-8285-b391b90b3c21", "name": "Accounts Payable", "value": "4050.00" } ] } ] }, { "account_id": null, "name": "Credit Cards", "value": "854440.93", "items": [ { "account_id": null, "name": "2004 Credit Card", "value": "854440.93", "items": [ { "account_id": "420851e1-e6f4-4f2f-9a15-3634fa24bce0", "name": "Flex Bronze Card", "value": "5817.50" }, { "account_id": "1a6c59d8-ae89-4704-b6ec-721da2e6b7c0", "name": "Flex Silver Card", "value": "797087.28" }, { "account_id": "6112362b-0dac-4172-a3da-5c89e4487768", "name": "Flex Gold Card", "value": "76536.15" }, { "account_id": "fc38e9a5-f2f5-45b0-8466-ecfc36d28561", "name": "Flex Platinum Card", "value": "-25000.00" } ] } ] } ], { "account_id": null, "name": "Long-Term Liabilities", "value": "10491.24", "items": [ { "account_id": "220", "name": "Settle Loans Payable", "value": "10491.24" } ] } ], "equity": { "name": "Equity", "value": "12399101.55", "items": [ { "account_id": null, "name": "Owners Equity", "value": "-95000.00", "items": [ { "account_id": "831b6852-6f82-4ce1-b07b-88601d16457d", "name": "Owner's Equity", "value": "-95000.00" } ] }, { "account_id": "b1ba5fb3-5d54-4806-ad8d-e78bd2187e13", "name": "Retained Earnings", "value": "11881707.50" }, { "account_id": "49862dbf-e470-479e-98ae-c1e172bd86a3", "name": "Balance Adjustments", "value": "122453.09" }, { "account_id": null, "name": "Net Income", "value": "489940.96" } ] } ] }
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