Web2/BE/Engineer Screening Process: Light Take-home Assignment

Objective:

* This assignment assesses your ability to design a simple shopping cart using Django, with a focus on API design and business logic. You aim to create a Django app with an API to manage a custom data model, implement ORM/CRUD operations, and integrate business logic specific to a shopping cart.
* Use SQLite/default database storage to store data.
* The below are the minimum requirements, and you are welcome to add more or adjust things as needed—ensure that you include justifications or reasoning for any additional elements.

Time Estimate:

X hours

Deliverables:

#### Designing Data Relations on Given Data Model:

* Data Model:
  + Create a Django app named shopping\_cart with models for User, Product, Order, and Payment
* Explanation of relationship and behavior:
  + Document the relationships between the models and the expected behavior. For example, explain that an order is associated with a user and contains multiple products.

#### Business Logic Design and Implementation:

* Define and document any business logic required for the application. This could involve calculations, validations, or any specific behaviors associated with your data model.

#### API Design and Implementation

* API Endpoints:
  + Create API views to handle ORM/CRUD operations - add, delete & update. These views will interact with your data model and incorporate business logic as needed.
  + Add basic authentication through HTTP header - static key check is okay
  + (Bonus) Use Django Rest Framework for building RESTful APIs if you are familiar with it. Otherwise, you can simulate RESTful API JSON responses with views or custom serializers.
  + (Bonus) Adding JWT authentication and verification
  + (Bonus) Add necessary unittest to integration tests for API or business logic
* Serializers:
  + Create serializers for your models to convert complex data types (like Django models) to Python data types that can be rendered into JSON.
* API Examples:
  + Add & Alter User Entry
  + Add & Alter Product Entry
  + Add & Alter Order Entry
  + Add & Alter Payment Entry
  + Other APIs would need to operate the application

Submission Instructions:

* Submit the entire Django project to GitHub. Ensure that you include the shopping\_cart app and any other necessary files (e.g., business\_logic.py, api/views.py, api/serializers.py).
* Provide a detailed document outlining the steps you took to design the data model, integrate business logic, and implement the API. Include any challenges faced and decisions made during the development process.