Coding Test for Backend developer

**Problem Description**

Design a system where a user can keep track of employees and vacations. For example, company admin can insert / update / delete an employee with his name, description, position and hiring date. An employee can apply for a vacation using an endpoint. There are several statuses of a vacation request. When an employee requests a vacation with a date or date range it's in the pending state. Admin can either approve or reject his vacation request.

Follow the condition when creating the endpoints

* Employee with the same email, can’t be created twice
* An employee can only request 4 leaves in total. `
* A user can upload a file attachment with the vacation request

**Task 01**

* How will you design the database for this system? Create a database using any SQL database
* How will models look like in implementation perspective

**Task 02**

* Create an Api which will have functionalities to provide crud functionalities for employee
* Request a leave for a specific employee
* Get all vacation for an employee (Either approved, pending, rejected or all)
* Design an Api to search Api
* Design an Api to upload different types of files related to a vacation

**Evaluation**

* **Database design should meet all design standards**
* **Coding Architecture**
* **Optimization**
* **Simplicity of the code and easy to understand**
* **Server-side filtering and searching**

Preferred Technologies: Python, Django

Softwares to install today  
\* <https://www.pgadmin.org/> ( we use postgres and pgadmin )

install python in pc

install node + angular in your pcs

<https://nodejs.org/en>

Go through this please

1) <https://www.ibm.com/topics/rest-apis#:~:text=the%20next%20step-,What%20is%20a%20REST%20API%3F,representational%20state%20transfer%20architectural%20style>.

2) <https://www.redhat.com/en/topics/api/what-is-a-rest-api>

3) <https://restfulapi.net/> what is rest . how rest is implemented using http . what are http methods you guys should understand this first

4) Checkout EINO\_STORY3.0 PDF file

5) try to solve this problem  Coding Test for Backend developer (1) doc file

6) <https://blog.stoplight.io/api-design-example>

7) <https://stackoverflow.blog/2020/03/02/best-practices-for-rest-api-design/>

8) please take a look at this tutorials , which will help you out to create rest apis <https://www.ginkgobioworks.com/2021/02/04/creating-a-rest-api-using-django-rest-framework/>

9) <https://www.makeuseof.com/django-rest-api-create/>

10) <https://blog.logrocket.com/django-rest-framework-create-api/>

Then task is to practice this test apis . But remember the goal is not to follow this tutorial . The goal is to learn how rest api can be developed using django rest . Main key points

* How to develop a get / post request
* How to read form data from request
* How to read json body data from post request
* How to create a patch api
* How to modify a serializer in model

11) This is the official Documentation site for Django Rest <https://www.django-rest-framework.org/>

12) <https://developer.mozilla.org/en-US/docs/Web/HTTP/Status>

13) <https://developer.mozilla.org/en-US/docs/Web/HTTP/Authentication>

14) <https://medium.com/microtica/the-concept-of-domain-driven-design-explained-3184c0fd7c3f>

15) <https://www.okta.com/identity-101/dto/#:~:text=A%20data%20transfer%20object%20(DTO,without%20potentially%20exposing%20sensitive%20information>.

16) See the PDF of Employee management System

17) <https://docs.djangoproject.com/en/4.2/topics/db/examples/many_to_one/>

18) <https://www.wrike.com/project-management-guide/faq/what-is-agile-methodology-in-project-management/>

19) Creating a custom middleware ( how to do it ? what is middleware )  
<https://simpleisbetterthancomplex.com/tutorial/2016/07/18/how-to-create-a-custom-django-middleware.html>