LUCID: Control, Steer & Shine

Daily Vision

LCSS Project SoSe 2022

Team: 08

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Large and Cloud- based Software systems

Technology
Arts Sciences
TH Köln

Contents

Introduction

- From book ‘Atomic Habits’, written by the famous writer, James Clear who has emphasized in his book by saying that

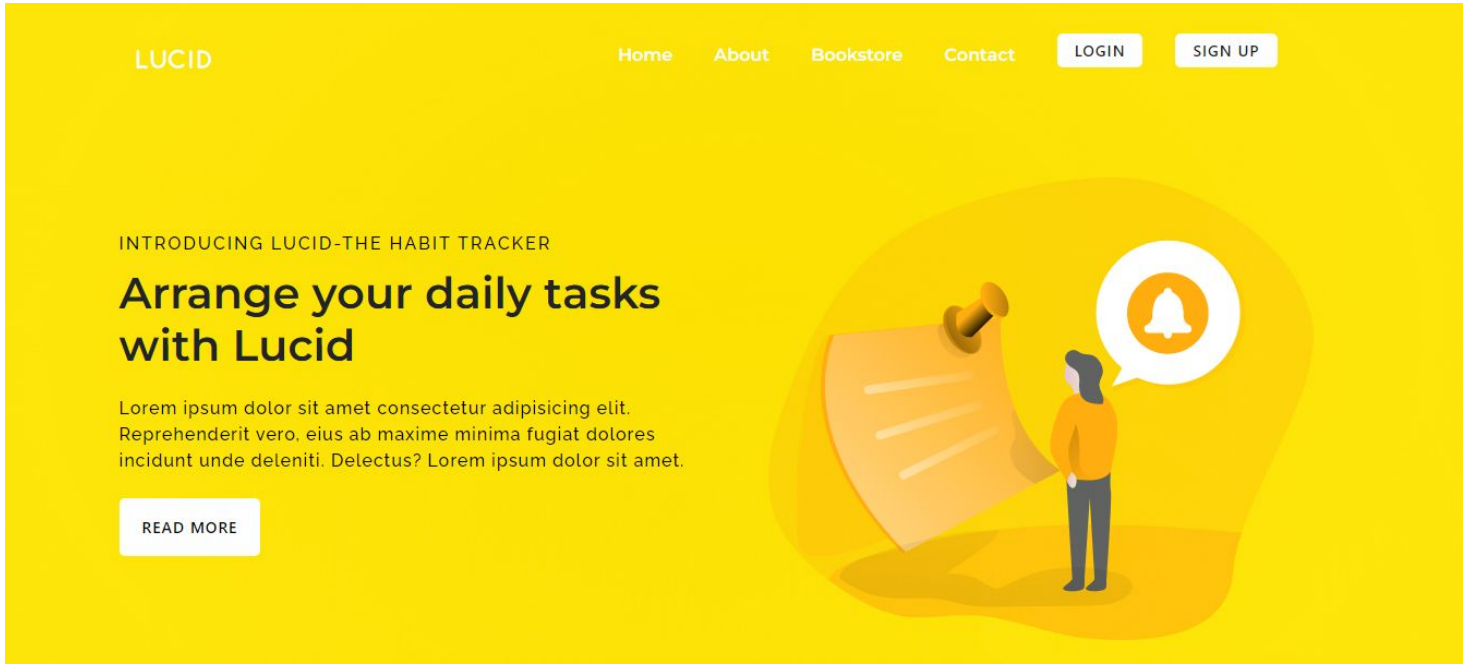
“ All big things come from small beginnings. The seed of every habit is single,tiny decision.But as that decision is repeated, habit sprouts and grows stronger.”

- **LUCID:** *The Daily Vision* - a web application which can log and track daily to-do lists and most significantly the habits stack of users who want to work on their desired fields of interests consistently

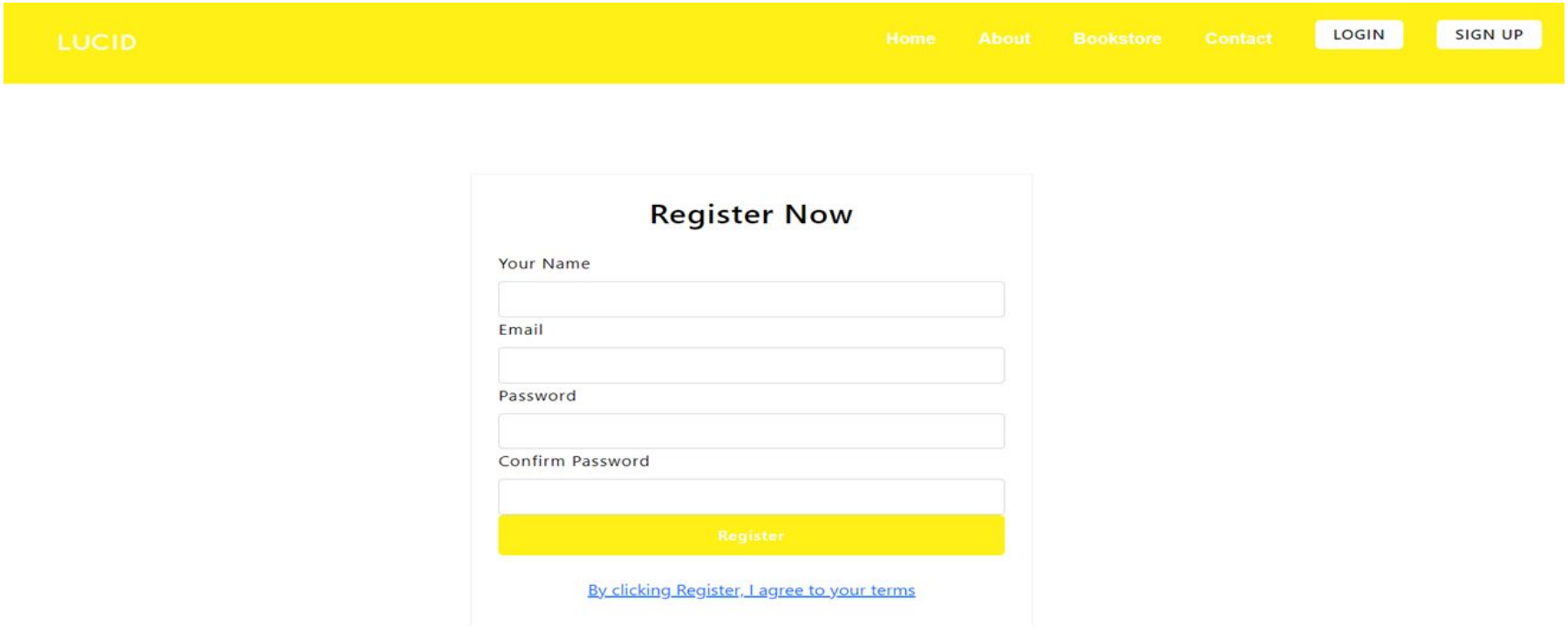
Goals

Adding tasks(to-do list page) to track their flow of daily life tasks. Dividing them into priority and setting the progress status to check the daily work growth and be motivated to finish the tasks on time.

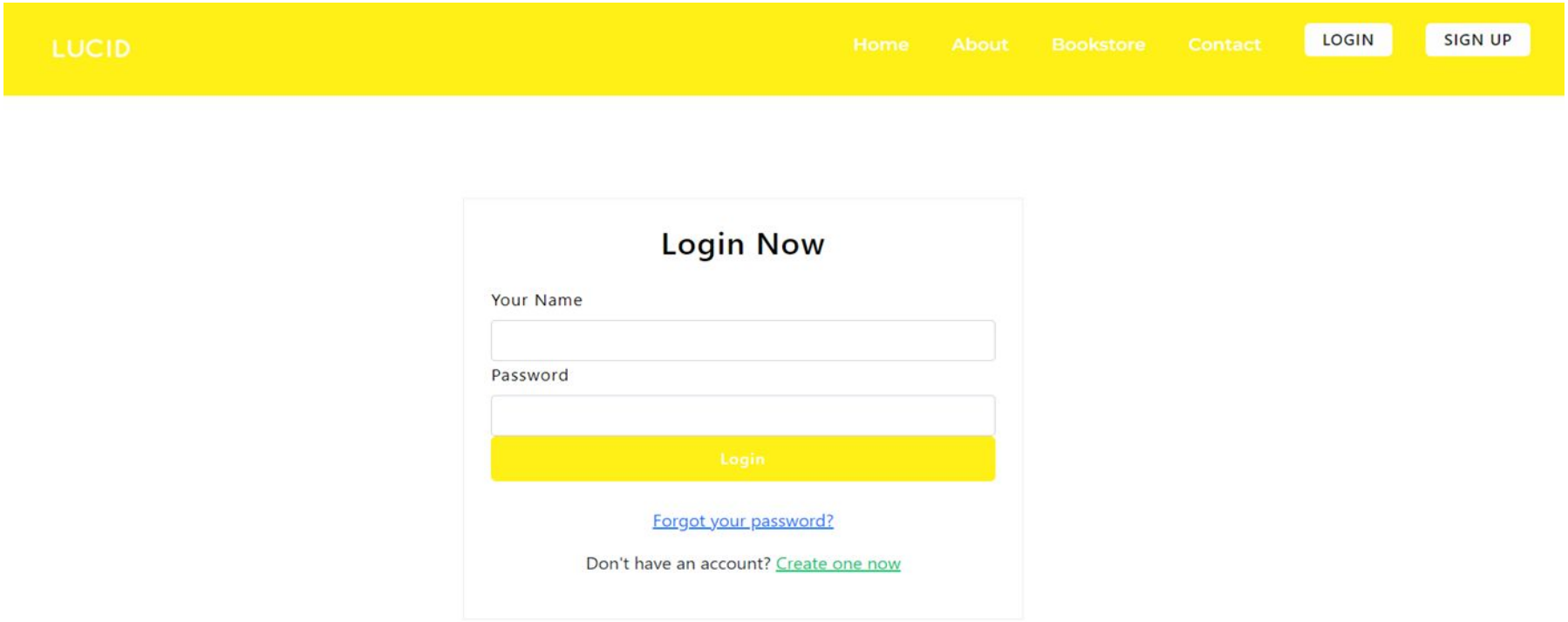
Front-End Design



Registration Page



Login Page


LUCID
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LOGIN
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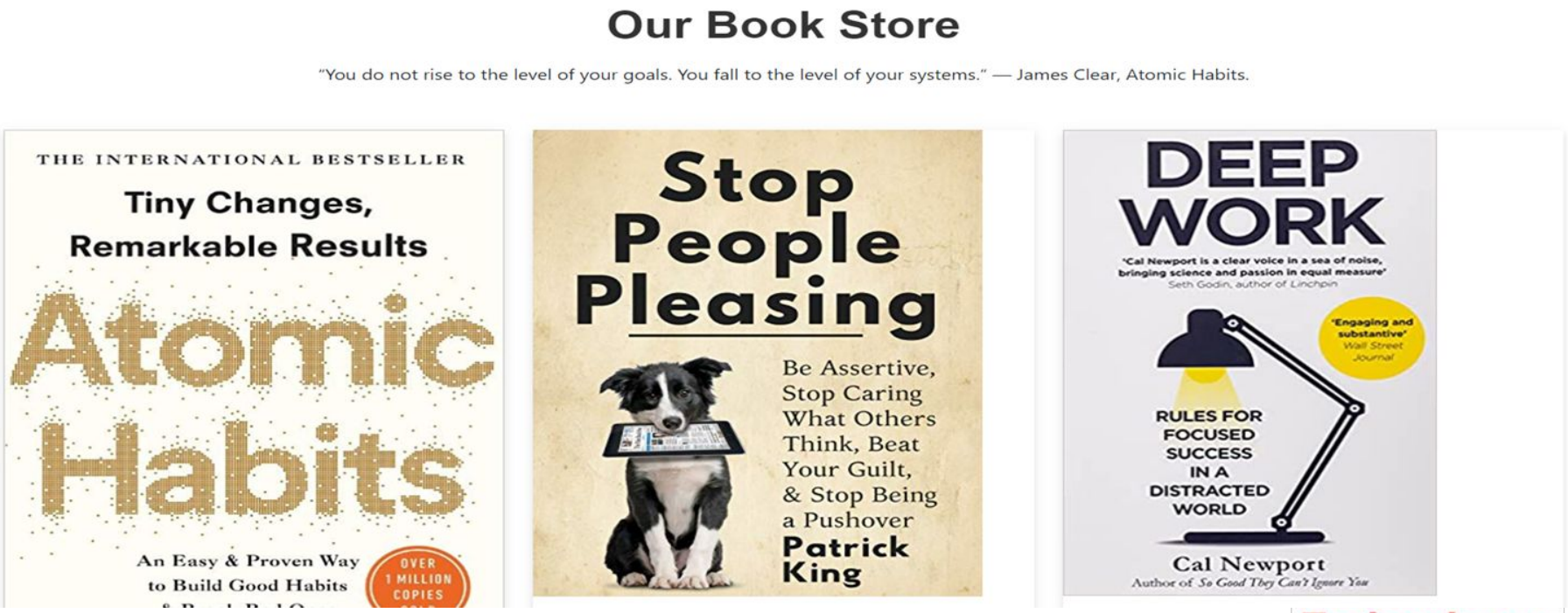
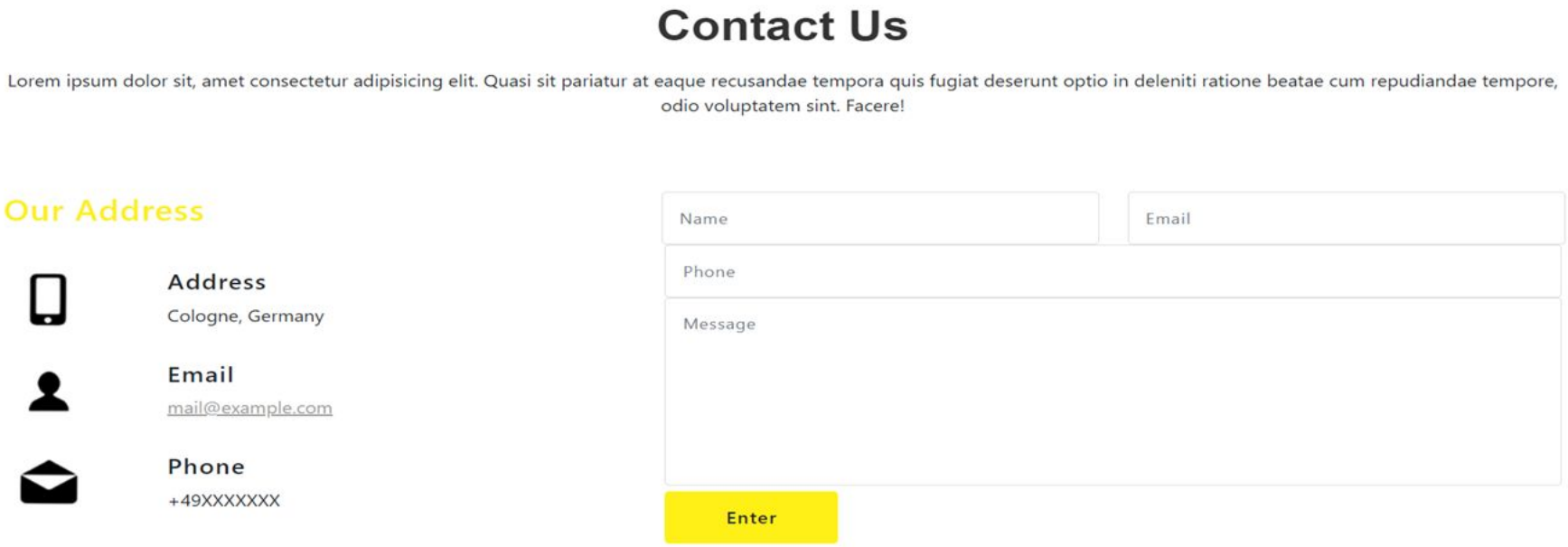
Your Name
Password
Login
Forgot your password?
Don't have an account? Create one now

Bookstore Page



Contact Page

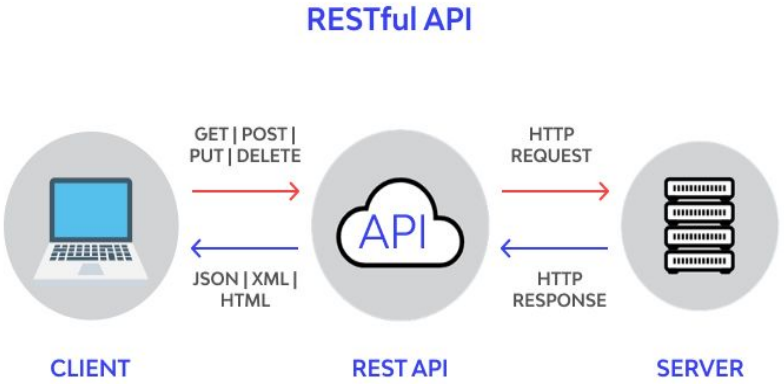


Technologies

- HTML
- CSS
- Bootstrap
- JavaScript
- Flask
- PHP
- Nginx
- PostgreSQL
- GCP

Backend Design

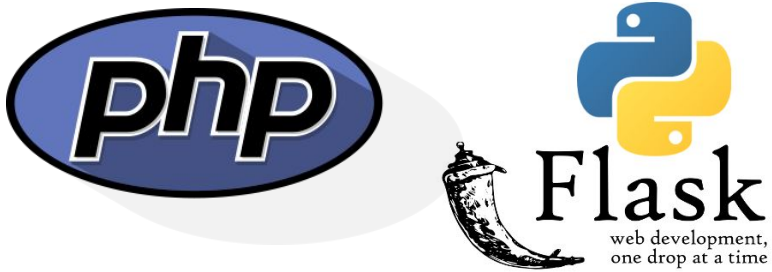
- API Based design
- Create endpoints for all functions
- The web interface interacts with the backend by sending HTTP requests t the API
- Provides isolation between frontend and backend
- Easy to maintain and extend for any frontend



List of APIs developed

- User registration
- Login verification
- First time initialization
- CRUD tasks

Powered by



Database - PostgreSQL

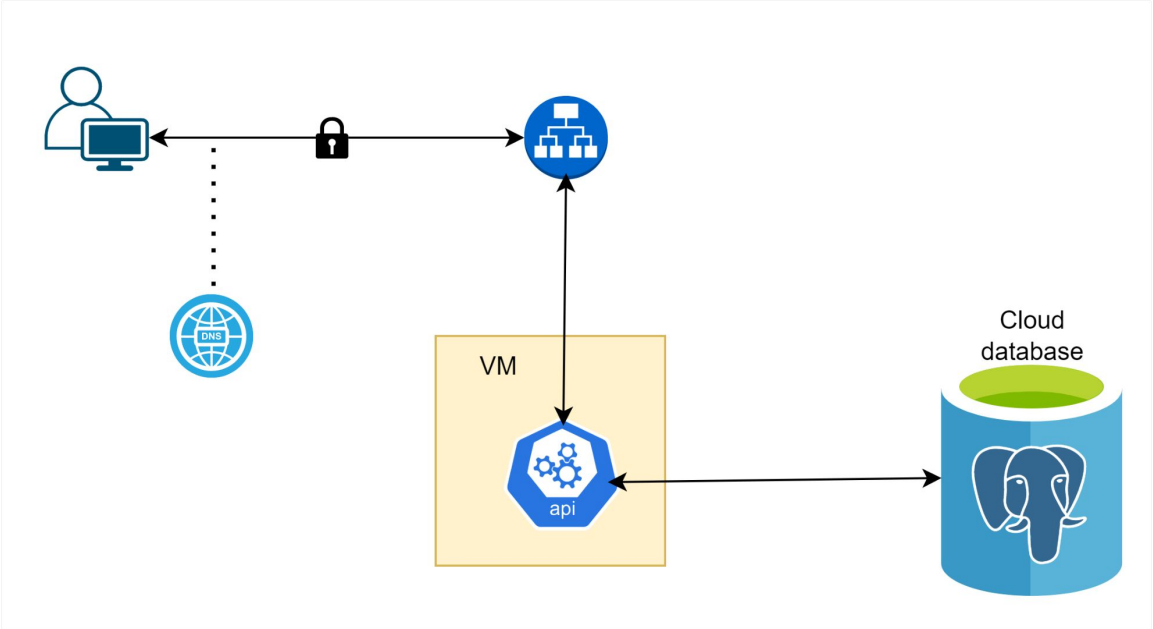
List of Tables

- Users
- Tasks

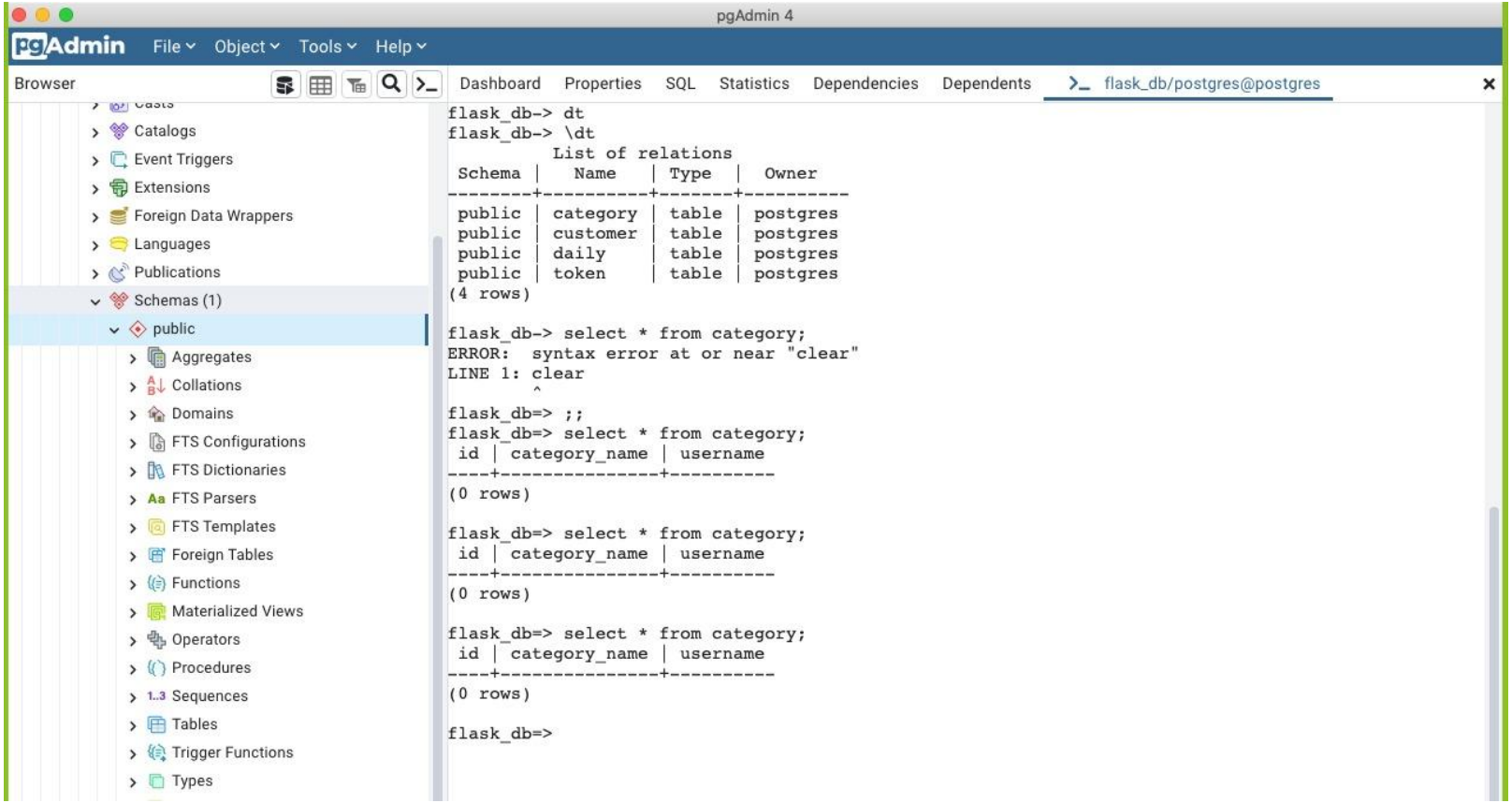
Powered by

Deployment

Deployment



- Creating a project
- Launch a VM based on Ubuntu 20.04. We will use this to run our API service.
- Create a Cloud Sql (postgres) instance and a database named flask_db inside it to store all the user data. The API is configured to connect via a public ip address to this instance.
- The client requests are handle using Cloud load balancing which distributes incoming application traffic among application instances.
- Cloud DNS is used to for user request.


pgAdmin 4
pgAdmin
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Dependencies
Dependents
flask_db/postgres@postgres
Catalogs
Event Triggers
Extensions
Foreign Data Wrappers
Languages
Publications
Schemas (1)
public
Aggregates
Collations
Domains
FTS Configurations
FTS Dictionaries
FTS Parsers
FTS Templates
Foreign Tables
Functions
Materialized Views
Operators
Procedures
Sequences
Tables
Trigger Functions
Types
flask_db-> dt
flask_db-> \dt
List of relations
Schema | Name | Type | Owner
public | category | table | postgres
public | customer | table | postgres
public | daily | table | postgres
public | token | table | postgres
(4 rows)
flask_db-> select * from category;
ERROR: syntax error at or near "clear"
LINE 1: clear
^
flask_db=> ;;
flask_db=> select * from category;
id | category_name | username
(0 rows)
flask_db=> select * from category;
id | category_name | username
(0 rows)
flask_db=> select * from category;
id | category_name | username
(0 rows)
flask_db=>

Research Questions

1. Is the application available over lower internet connectivity?

Approach: by creating multiple user account and accessing the app over low internet speed.

2. What impact will the dynamic scaling of resources based on CPU load have on the overall performance of the application and the user experience?

Approach: We will assume a usage trend for the application based on the time of the day, week and month and use this to estimate the dynamic scaling of the application. We will then perform a load test on the application with and without dynamic scaling and compare the performances and also estimate the cost differences.

3. Network performance testing between user the server.

Approach: by performing a ping and traceroute test to check for latency and network issues(if any).

Thank you!