**1. Project Overview**

* **Project Name:** Kenya Data Viz
* **Description:** A financial and macroeconomic data analysis platform for Kenya, offering free and premium content. The platform includes various dashboards displaying GDP, population, exchange rates, inflation trends, and stock prices.
* **Key Features:**
  + Freely accessible macroeconomic and financial data.
  + Pay-to-view historical data trends.
  + User authentication and membership.
  + Payment integration with Stripe and Mpesa.
* **Tech Stack:**
  + **Backend:** Django, Django Rest Framework
  + **Frontend:** React, Vite, Bootstrap
  + **Database:** SQLite
  + **Payments:** Stripe, Mpesa

**2. Getting Started**

**2.1 Prerequisites**

* **Node.js** (version >= 20.16.0)
* **Python** (version >=3.10)
* **Django** (version 5.1)
* **Package Manager:** Yarn for JavaScript packages, pip for Python packages.

**2.2 Installation**

**Backend (Django):**

1. Clone the repository:

>> git clone https://github.com/EmanuelSolver/Kenya-Data-Viz.git

1. Create a virtual environment:

>> cd Kenya-Data-Viz/serverside

>> python -m venv venv

1. Activate virtual environment

>> venv\Scripts\activate

1. Install dependencies:

>> pip install -r requirements.txt

**Requirements are:**

asgiref==3.8.1

beautifulsoup4==4.12.3

certifi==2024.7.4

charset-normalizer==3.3.2

Django==5.1

django-cors-headers==4.4.0

django\_csp==3.8

djangorestframework==3.15.2

djangorestframework-simplejwt==5.3.1

idna==3.7

numpy==2.0.1

pandas==2.2.2

PyJWT==2.9.0

python-dateutil==2.9.0.post0

python-decouple==3.8

pytz==2024.1

requests==2.32.3

six==1.16.0

soupsieve==2.6

sqlparse==0.5.1

stripe==10.8.0

tabulate==0.9.0

typing\_extensions==4.12.2

tzdata==2024.1

urllib3==2.2.2

1. Apply migrations:

>> python manage.py migrate

1. Run the development server:

>> python manage.py runserver

**Frontend (React):**

1. Navigate to the frontend directory

>> cd Kenya-Data-Viz/clientside

1. Install dependencies:

Below are all the dependencies required for the project to run smoothly

"@fortawesome/fontawesome-free": "^6.6.0",

"@fortawesome/fontawesome-svg-core": "^6.6.0",

"@fortawesome/free-solid-svg-icons": "^6.6.0",

"@fortawesome/react-fontawesome": "^0.2.2",

"@popperjs/core": "^2.11.8",

"@stripe/react-stripe-js": "^2.8.0",

"@stripe/stripe-js": "^4.3.0",

"axios": "^1.7.3",

"bootstrap": "^5.3.3",

"chart.js": "^4.4.3",

"chartjs-adapter-date-fns": "^3.0.0",

"chartjs-chart-financial": "^0.2.1",

"date-fns": "^3.6.0",

"formik": "^2.4.6",

"js-cookie": "^3.0.5",

"prop-types": "^15.8.1",

"react": "^18.3.1",

"react-bootstrap": "^2.10.4",

"react-chartjs-2": "^5.2.0",

"react-dom": "^18.3.1",

"react-router-dom": "^6.26.0",

"react-toastify": "^10.0.5",

"vite-plugin-compression": "^0.5.1",

"yarn": "^1.22.22",

"yup": "^1.4.0"

1. **State Management** is through react Context. We have the user context and navigation context to manage the sidebar. This is with the help of local storage to store various states.

**2.3 Configuration**

* **Environment Variables:** Create a .env file in the root of your project for Django

**Django:**

STRIPE\_TEST\_PUBLIC\_KEY

STRIPE\_SECRET\_KEY=

CONSUMER\_KEY=

PASS\_KEY=

BUSINESS\_SHORT\_CODE=

CONSUMER\_SECRET=

DEBUG=True

**4. Usage**

* 1. **Navigating the Platform**
* **Home Page:** Provides an overview of Kenya Data Viz providing users with a header with tabs that users can navigate to Sign up, Sign in, Macroeconomics, or Financials. The last 2 are restricted to only logged-in users.
* **Main Dashboard:** After user successful login, they are redirected to the main dashboard with a sidebar with tabs as below.
  + **Profile:** Provides simple user information, name, email, location
  + **Dashboard1:** Displays nominal GDP, per capita GDP, and population charts.
  + **Dashboard2:** Displays USD/KES exchange rates.
  + **Dashboard3:**
    - D3-Page1: Compares current vs. prior month's inflation (free).
    - D3-Page2: Displays historical inflation trends (paid).
  + **FinancialAnalysis Tab:**
    - FA-Page1: Shows Safaricom's share prices from July 2024 (free).
    - FAPage2: Shows historical prices before July (paid).
* **Filtering Data:** On all the displayed charts, the user can filter data to be displayed by clicking the blue buttons at the top of the chart. For instance, if users want to display data for the last five years, they should click the **‘Last 5Y’** button. If it is for the last one month, they just need to click the **'Last 1M’** button.

**4.2 User Registration & Authentication**

* A new user to Kenya Data Viz registers by clicking the Sign-Up tab on the header if a user has an account, they go ahead and click the Sign-in tab at the header and log in with their username and password
* Users are authenticated using JSON web token (JWT)
* Users can View profile information on the Profile page by clicking the Profile button on the sidebar.

**4.3 Payments & Subscriptions**

* To access paid content, users can purchase a subscription via Stripe or Mpesa by clicking the ‘Be a full member’ button when they head to locked pages on the sidebar.
* Users using debit/credit cards give their card details and Ksh.100 is deducted from their account upon successful payment.
* Users who pay via Mpesa, provide only their Mpesa number, and an STK push is made to their phone, the only thing they need to do is provide their Mpesa pin.
* Users can use discount coupons to access premium content. A coupon code is given to them.

**5. API Documentation**

* **Authentication:**
  + POST /accounts/token/ - Obtain JWT token.
  + POST /accounts/token/refresh/ - Refresh JWT token.
* **Macroeconomic Data:**
  + GET / macroeconomics /gdp/ - Retrieve GDP data.
  + GET /macroeconomics/population/ - Retrieve population data.
  + GET / macroeconomics /exchange-rates/ - Retrieve exchange rate data.
* **Financial Data:**
  + GET /financialanalysis/share-prices/ - Retrieve Safaricom share prices.