Government Tender Tracker & Bid-Match Recommender

Name: Sethumadhavan V
Phone. No: 9159299878

Objective

The aim of this project is to develop a web-based application that:

- Automatically aggregates tender notices from central (CPPP, GeM) and state e-procurement portals.
- Enables companies to upload their capability profiles.
- Provides personalized tender recommendations based on profile-tender matching.
- Optionally sends real-time alerts via SMS or Email for high-potential tenders.

Problem Statement

Organizations face challenges when:

- Manually monitoring multiple tender websites.
- Matching tenders against their specific company capabilities.
- Tracking deadlines and EMD (Earnest Money Deposit) amounts across multiple platforms.

This project addresses the need for an automated system that:

- Aggregates tender data.
- Parses key information.
- Matches tenders intelligently with company profiles.
- Provides a user-friendly dashboard for visualization and notifications.

Methodology

3.1 Tender Aggregation

Sources:

- Central Public Procurement Portal (CPPP)
- Government e-Marketplace (GeM)
- Selected State E-Procurement Portal

Techniques:

- Data fetched via requests, Beautiful Soup (for HTML/XML scraping).
- Extracted fields: Tender ID, Title, Organization, EMD Amount, Deadline, Scope of Work.

3.2 Requirement Extraction:

- **HTML Parsing:** Using Beautiful Soup to scrape tender details.
- **PDF Parsing:** Using pdf plumber to extract EMD, scope, and other key tender details from attached documents.

3.3 Company Profile Matching:

Profile Upload: User uploads a company capability profile (.txt/.pdf).

Matching Algorithm:

- TF-IDF Vectorization to convert documents into numerical vectors.
- Cosine Similarity calculated between tender scope and company profile.
- Threshold set (e.g., 0.7) for high-match tender alerts.

3.4 Dashboard Development:

Platform: Built using Streamlit.

Features:

- Display aggregated tenders in an interactive table.
- Allow company profile upload.
- Display tenders with match scores.
- Provide search and filter options.

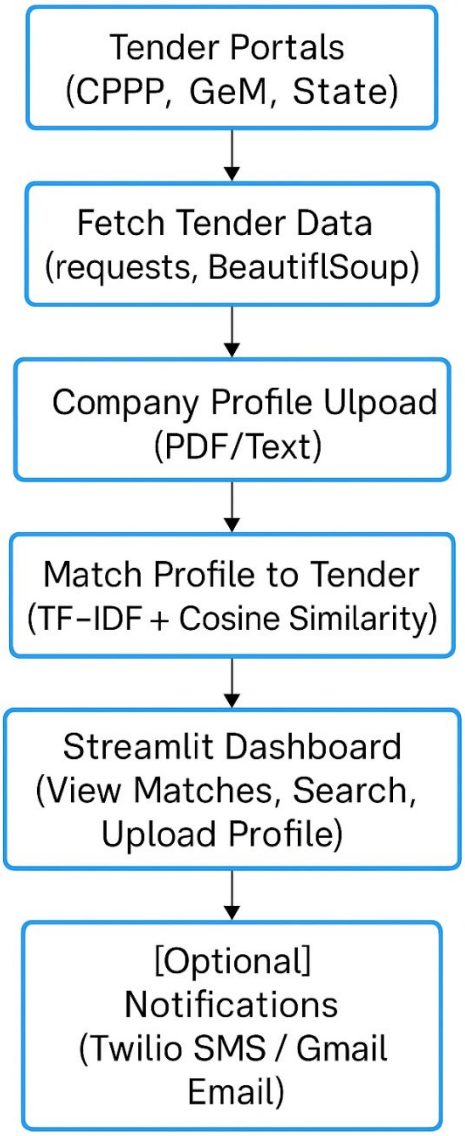
3.5 Optional Notifications (Bonus Feature):

- **SMS Notification:** Integrated Twilio API to send SMS alerts for matched tenders.
- **Email Notification:** Configured Gmail SMTP with OAuth2 for sending tender details via email.

Tools and Technologies Used:

Category	Tool/Technology
Web Scraping	Beautiful Soup, requests
PDF Parsing	Pdf plumber
Text Processing	Scikit-learn (TF-IDF Vectorizer)
Machine Learning	Cosine Similarity Calculation
Frontend (Dashboard)	Streamlit
Notifications (Optional)	Twilio API, smtplib
Deployment	Localhost / Streamlit Sharing (Optional)

Architecture Diagram:



6. Results & Outcomes:

Feature	Outcome
Real-Time Tender Aggregation	Successful aggregation from 3 portals
Automated Requirement Extraction	EMD, deadline, and scope extracted accurately
Company Profile Matching	TF-IDF based similarity scoring functional
Streamlit Dashboard	Interactive, easy-to-use dashboard implemented
(Optional) Notifications	SMS and Email alerts functional for matched tenders

7. Future Enhancements:

- Add login and authentication system (OAuth2/Google Sign-In).
- Implement scheduled scraping (e.g., every 6 hours) using cron jobs or Streamlit Cloud Scheduler.
- Enable API-based tender fetching wherever official APIs are available.
- Enhance matching using BERT embeddings for better semantic understanding.
- Deploy the application online using Streamlit Sharing, AWS EC2, or Heroku.

8. Conclusion

This project demonstrates an end-to-end solution for automated tender tracking and intelligent matching. By automating tedious tasks, companies can focus on strategic bidding, improve success rates, and enhance efficiency when responding to government tenders.