Ajay Chandra Tegella

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Portfolio: ategella.github.io/portfolio

Skills

- **Languages**: Python, SQL, Haskell, HTML, CSS
- **CMS Platform**: WordPress, Joomla
- **DataBases**: MySQL, SQLite, MongoDB, Microsoft SQL Server
- **Frameworks**: Django, Flask
- **Libraries**: Pandas, NumPy, scikit-learn, NLTK
- **Visualization Tools**: PowerBI, Tableau
- **Cloud Technologies**: Microsoft Azure, AWS
- **Testing**: Python unittest
- **Soft Skills**: Leadership, Writing, Deep Learning
- **Version control systems**: GitHub

Education

- **Saint Louis University** — Missouri
  Master of Science, Computer Science — *GPA: 3.5*

Experience

- **Technology Manager Assistant** — St.Louis, MO
  Saint Louis University, Department of Public Safety — *July 2021 - November 2022*
  - Used PowerBI to visualize the data from conducting security camera and fire inspection audits.
  - Audited Fire alarm drills throughout the campus.
  - Audited smoke detectors test in residential areas.

Projects

- **Responsive Magazine Website**: Designed and developed a dynamic, visually engaging magazine website using semantic HTML5 and CSS3 Grid and Flexbox for responsive layouts. Implemented adaptive typography with Google Fonts and integrated Font Awesome icons for enhanced social media connectivity. Optimized image loading with lazy loading techniques to improve page performance. Ensured cross-device compatibility and accessibility compliance to deliver a seamless and immersive reading experience. [View Website]
- **Piano Keyboard UI**: Designed and implemented a scalable piano keyboard interface using HTML and CSS, accurately modeling white and black keys with custom styling. Utilized CSS positioning and pseudo-elements to create visually distinct black keys overlaying white keys, replicating the authentic piano layout. Ensured responsiveness with media queries that adapt the interface seamlessly across various screen sizes. Applied modern CSS techniques such as box-sizing inheritance and border-radius for clean visuals and consistent spacing. [View Website]
- **CSS Flexbox photo gallery**: Built a responsive photo gallery using CSS Flexbox to create a dynamic, multi-row layout that adapts to various screen sizes. Utilized semantic HTML5 for structure and optimized images with object-fit: cover to maintain aspect ratios within fixed-size containers. Implemented flexbox properties such as flex-wrap, justify-content, and gap for consistent spacing and alignment. Styled the gallery header for visual emphasis with custom typography and color contrast. Ensured a clean, user-friendly interface with rounded image corners and centralized content, focusing on performance and modern web standards. [View Website]
- **Registration Form**: Developed a responsive and accessible registration form using semantic HTML5 and modern CSS3 techniques. The form includes multiple input types such as text, email, password with regex-based validation, radio buttons, file upload, number input with constraints, select dropdown, and textarea. Implemented client-side validation to enforce required fields and password complexity, enhancing user experience and data integrity. Styled the form for a clean, user-friendly interface with mobile-first responsive design and clear visual hierarchy. [View Website]
- **Cat Café Menu Web Page**: Developed a responsive and accessible static web page featuring a themed café menu using semantic HTML and modern CSS. Utilized CSS Flexbox for layout structuring and Google Fonts for typography customization. Integrated Font Awesome icons for visual enhancement and applied image-based background with backdrop-filter for stylized transparency. Focused on maintainable code structure, media query breakpoints for mobile support, and cross-browser compatibility. [View Website]
- **Calorie Intake Calculator with Interactive GUI**: Developed a calorie intake calculator application that leverages a RESTful API to compute daily recommended calorie intake based on user-provided parameters such as age, gender, weight, height, and activity level. Designed and implemented the API using Python, applying standard nutritional formulas (e.g., Mifflin-St Jeor equation) to ensure accurate recommendations. Built an interactive graphical user interface (GUI) using the Tkinter library, enabling users to input data, submit requests, and view results in real time. Structured the application for modularity, separating the GUI from the business logic and API handling to enhance maintainability and scalability.

Academic Projects

- **Library Management System**: Developed a web-based Library Management System using PHP as the primary backend technology, incorporating a modular architecture with multiple backend services to handle user authentication, book inventory, borrowing and returns, and administrative controls. Designed and implemented a normalized relational database schema using MariaDB to efficiently manage library data, including users, books, transactions, and overdue records. Deployed the MariaDB instance on an Azure Virtual Machine to ensure scalable and secure hosting, optimizing the system for high availability and performance. Coordinated the integration of the database with backend services through structured query language (SQL) operations and PHP's PDO extension, ensuring secure and efficient data access.
- **Multilingual Dictionary**: Designed and developed a multilingual dictionary web application using Python Flask, capable of predicting word meanings in English, German, and Italian with an 85% accuracy rate. Engineered a custom MySQL database to store and manage English and German language corpora, including word definitions, examples, and linguistic metadata. Implemented a part-of-speech (POS) parsing mechanism to index entries, which improved search efficiency by 20%, enabling faster and more accurate query responses. Integrated Flask-based RESTful APIs to facilitate seamless user interactions and real-time word lookups.
- **Human Facial Recognition**: Implemented a multi-class facial expression classification model using the FER-2013 dataset, which contains 30,219 labeled grayscale images of facial expressions such as happy, angry, sad, and others. Preprocessed the dataset through normalization, resizing, and data augmentation techniques to improve model generalization. Developed and compared several machine learning classification algorithms, including Support Vector Machines (SVM), Random Forests, and a deep neural network (CNN), achieving up to 85% accuracy across models. Evaluated model performance using precision, recall, and confusion matrix metrics to ensure consistent results across emotion classes.
- **Game development using Unity**: Designed and developed a fully functional game by implementing over 52 unique game mechanics using the Unity Engine and C#. The project involved extensive use of object-oriented programming, Unity's component-based architecture, and custom physics and animation systems. Focused on creating a dynamic and engaging user experience through iterative playtesting and feedback-driven refinements.
- **Internet of Things (IoT) using Esp32**: Deployed a long-range wireless communication system using two Heltec ESP32 microcontrollers equipped with LoRa modules to establish peer-to-peer data transmission. Integrated BME280 environmental sensors with each node to capture temperature, pressure, and humidity readings in real-time. Configured LoRa to publish sensor data over a custom protocol to all subscribed clients within the communication range, enabling reliable, low-power telemetry. Ensured stable data transmission by handling packet loss, signal strength monitoring (RSSI), and efficient serialization of sensor payloads for broadcasting.

Professional Certificates

- **Programming in Python**: By Meta
- **Version Control**: By Meta
- **APIs**: By Meta
- **Django**: By Meta
- **Databases for Back-End Development**: By Meta