

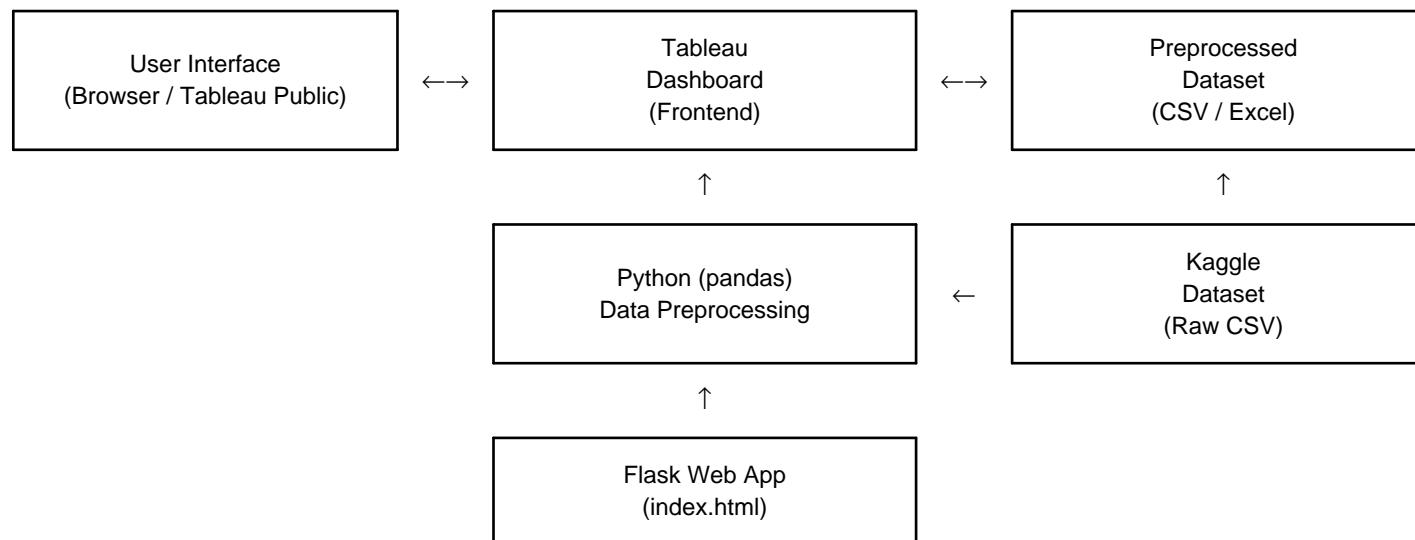
## Project Design Phase-II

### Technology Stack (Architecture & Stack)

Date	
Team ID	
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features Using Tableau
Maximum Marks	4 Marks

#### **Technical Architecture:**

The following diagram illustrates the end-to-end technical architecture of the Housing Market Trends visualization project, from raw data ingestion through to the end-user interactive dashboard.



#### **Technology Stack Details:**

<b>Layer</b>	<b>Technology / Tool</b>	<b>Purpose</b>	<b>Version / Notes</b>
Frontend	Tableau Public	Interactive dashboard creation and publishing	Latest version (cloud-based)
Frontend	HTML5 / Bootstrap 5	Web page structure and styling for project landing page	Bootstrap 5.3.0
Backend	Flask (Python)	Lightweight web server to host the project landing page	Python 3.x, Flask 2.x
Data Processing	Python (pandas)	Data cleaning, missing value handling, feature engineering	pandas 1.x / 2.x
Data Processing	Microsoft Excel / Google Sheets	Initial data inspection and manual preprocessing	Excel 2021 / Google Sheets
Data Source	Kaggle Housing Dataset	Ames, Iowa house price dataset with 79+ features	House Prices - Advanced Regression Techniques
Visualization	Tableau Charts	Scatter plots, bar charts, heat maps, line graphs, box plots	All chart types in Tableau Public
Deployment	Tableau Public	Free hosting and sharing of interactive dashboards	Publicly accessible via link
Version Control	GitHub	Source code management and project collaboration	Git 2.x

## Data Flow in Architecture:

Step	Component	Input	Process	Output
1	Kaggle / Data Source	Raw housing CSV file (Ames Iowa, 1460 records, 79 features)	Download and store dataset	Raw CSV file available locally
2	Python / Excel Preprocessing	Raw CSV file	Handle missing values, encode categorical columns, engineer new features (TotalSF, AgeOfHouse)	Cleaned CSV ready for Tableau
3	Tableau Import	Cleaned CSV file	Load data into Tableau, define data types, create calculated fields	Tableau data source connected
4	Tableau Dashboard Creation	Tableau data source	Create maps, scatter plots, bar charts, heat maps, line graphs, box plots with interactive filters	Three fully interactive dashboards
5	Tableau Public Publishing	Completed dashboards	Publish to Tableau Public for free hosting	Public URL shared with buyers, agents, analysts
6	Flask Web App	index.html template	Flask serves landing page at localhost:1212 with dashboard embed	Project web page accessible in browser
7	End User Interaction	Published Tableau dashboard	User applies filters (bedrooms, neighborhood, year, price range) and explores visuals	Personalized visual insights and reports