Project Design Phase-II
TechnologyStack(Architecture&Stack)

Date	21 June 2025
Team ID	LTVIP2025TMID59746
ProjectName	Visualizing Housing Market Trends:An Analysis Of Sale Prices And Features Using
MaximumMarks	4 Marks

TechnicalArchitecture:

TheDeliverableshallincludethearchitecturaldiagramasbelowandtheinformationasperthetable1&table2

Reference:https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/

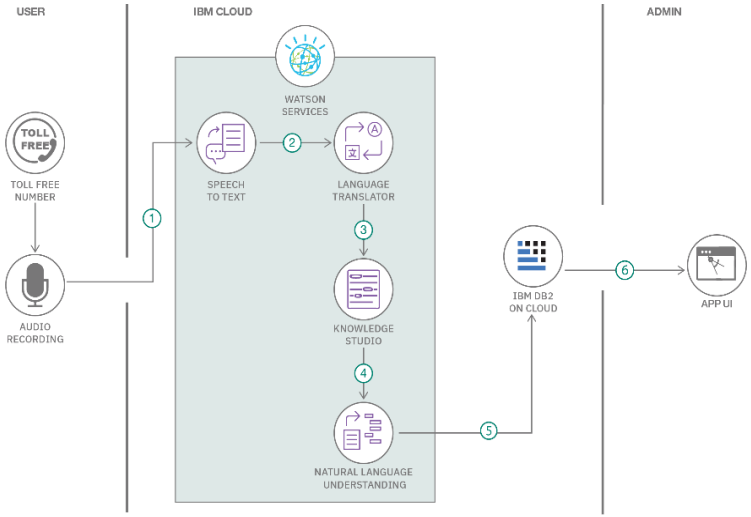

Table-1:Components&Technologies:

S.No	Component	Description	Technology
1.	UserInterface	Webinterfacefordatavisualization&interaction	HTML,CSS,JavaScript,Plotly.js
2.	ApplicationLogic-1	Datapreprocessingandnormalization	Python
3.	ApplicationLogic-2	Correlationanalysisbetweeneconomicindexand indicators	Python(SciPy,statsmodels)
4.	ApplicationLogic-3	Interactivedashboardgeneration	Streamlit/Flask/Dash
5.	Database	Storerawandprocesseddata	MySQL
6.	CloudDatabase	Hostforshared/real-timeaccess	Firebase
7.	FileStorage	Uploadandmanagedatasets(CSV, Excel)	LocalFilesystem
8.	ExternalAPI-1	Pulladditionaleconomicdata	WorldBank API,
9.	ExternalAPI-2	Geomappingorvisualizationservices	GoogleMapsAPI.
10.	MachineLearningModel	Predictprosperitybasedoneconomicindicators	Scikit-learnRegressionModel
11.	Infrastructure(Server/Cloud)	Hostinganddeployment	Local.

Table-2:ApplicationCharacteristics:

S.No	Characteristics	Description	Technology
1.	Open-SourceFrameworks	Frameworksusedforvisualizationandapp deployment	Streamlit,Plotly,Dash,Pandas
2.	SecurityImplementations	Basicinputvalidation,roleaccess,andsecure upload	SSL,SHA-256hashing,FirebaseAuth
3.	ScalableArchitecture	Modular,scalablewithcloudhosting&stateless APIs	Microservicesarchitectureon Flask/Streamlit
4.	Availability	Cloud-hostedwithminimaldowntime	AWSEC2,FirebaseHosting,Streamlit Cloud
5.	Performance	Optimizedthroughcachingandminimalpayload visualization for fast loading	JSONqueries

References:

https://c4model.com/

https://developer.ibm.com/patterns/online-order-processing-system-

during- pandemic/https://www.ibm.com/cloud/architecture

https://aws.amazon.com/architecture

https://medium.com/the-internal-startup/how-to-draw-useful-technical-architecture-diagrams-2d20c9fda90d