Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	28June2025
TeamID	LTVIP2025TMID34780
ProjectName	Measuringthepulseofprosperity:anindexof economic freedom
MaximumMarks	4Marks

TechnicalArchitecture:

TheDeliverableshallincludethearchitecturaldiagramasbelow andtheinformationasperthetable1&table2

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

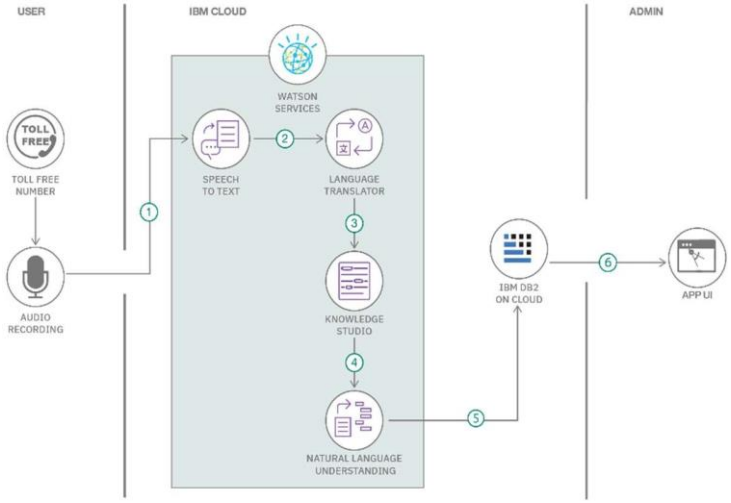

Table-1:Components&Technologies:

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	Storeraw andprocesseddata	MySQL
6.	CloudDatabase	Hostforshared/real-timeaccess	Firebase
7.	FileStorage	Uploadandmanagedatasets(CSV,Excel)	LocalFilesystem
8.	ExternalAPI-1	Pulladditionaleconomicdata	WorldBankAPI,
9.	ExternalAPI-2	Geomappingor visualizationservices	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