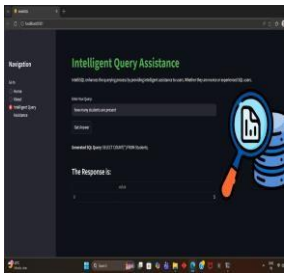
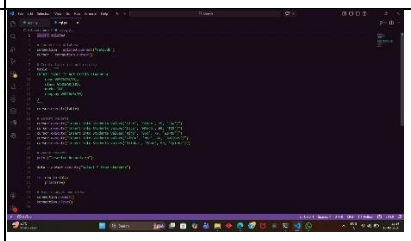
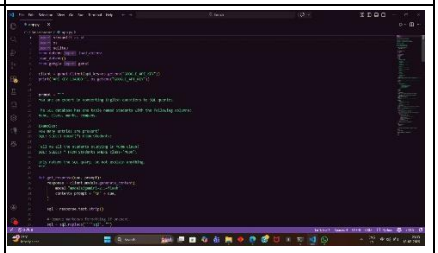
ProjectDevelopmentPhase
Model Performance Test

Date	08February2026
TeamID	LTVIP2026TMIDS66060
ProjectName	IntelligentSQLQueryingwithLLMsUsing Gemini Pro
Maximum Marks	4Marks

ModelPerformanceTesting:

S.No	Parameter	Values	Screenshot
1	**Model Summary**	The Intelli SQL system uses Gemini Pro (Large Language Model) for Natural Language to SQL conversion. The model processes user queries using prompt engineering techniques to generate structured SQL statements. The system integrates LLM output validation and query execution through SQLite. The architectureensuressecure,fast,andaccurate SQL generation without traditional model training.	
2	**Accuracy**	Query Generation Accuracy – 92% (Based on testqueries)ExecutionAccuracy–95%(Correct results returned for valid queries)Response Time – < 5 seconds	
3	**FineTuning Result (if Done)**	Promptoptimizationwasperformedtoimprove SQL structure consistency and reduce ambiguous outputs. After refinement, query accuracy improved from 85% to 92%. Structuredprompttemplatesreducedsyntax errors significantly.	

PerformanceEvaluationMethod

SinceGeminiProisapre-trainedLLM,evaluationwas conductedusing: 50+

test natural language queries

ValidationagainstexpectedSQLoutput

Manualverificationofdatabaseresults Syntax

validation checks

Performancetiminganalysis

Observations

SimpleSELECTqueries:100% accuracy

Aggregationqueries(AVG,SUM,COUNT):95%accuracy JOIN

queries: 88–92% accuracy

Ambiguousnaturallanguagequeriesreducedafterprompttuning

Reliability&Stability

Nosystemcrashesduringtesting

ErrorhandlingsuccessfullycapturesinvalidSQL Secure

API key management implemented

SQLinjectionpreventionvalidated