

SCHOOL OF COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE			DEPARTMENT OF COMPUTER SCIENCE ENGINEERING	
Program Name: B. Tech		Assignment Type: Lab		Academic Year: 2025-26
Course Coordinator Name		Dr.Vairachilai Shenbagavel		
Instructor(s) Name		Srinivas Komakula		
Course Code	23CA201SE402	Course Title	Explainable AI (P)	
Year/Sem	III/V	Regulation	R24	
Date and Day of Assignment	28-08-2025	Time(s)	09:00AM -05:00PM	
Duration	2 Hours	Applicable to Batch	23CSBTB33	
Assignment Number: 04				
Q. No.	Question			Expected Time to complete
1	Iris (Multiclass Classification			
<b>Objectives:</b> <ul style="list-style-type: none"><li>• Use Permutation Importance to determine which flower measurements matter globally.</li><li>• Apply SHAP to visualize species-specific influences.</li><li>• Use LIME to explain local predictions for two flowers.</li><li>• Compare alignment and divergence between methods.</li></ul> <b>Assignment Details:</b> <p>Goal: Understand which features drive predictions of flower species.</p> <p>Data: sklearn.datasets.load_iris()</p> <p>Model: RandomForestClassifier</p> <b>Steps:</b> <ul style="list-style-type: none"><li>• Train RandomForestClassifier.</li><li>• Permutation Importance: Rank features globally.</li><li>• SHAP: Produce beeswarm plot and one local explanation for Setosa.</li><li>• LIME: Explain two predictions (Setosa vs Virginica).</li><li>• Compare across methods.</li></ul> <b>Deliverables:</b> <ul style="list-style-type: none"><li>✚ Permutation Importance plot.</li><li>✚ SHAP beeswarm + 1 local force plot.</li><li>✚ LIME explanations for 2 samples.</li><li>✚ Comparative analysis across PI, SHAP, and LIME.</li></ul> <b>Submission Requirements:</b> <ul style="list-style-type: none"><li>▪ Short methods summary (3–5 lines).</li><li>▪ Clean, runnable code/notebook.</li><li>▪ All required plots (PI, SHAP global + local, LIME local).</li><li>▪ 5–10 bullet insights highlighting consistencies and differences.</li></ul>				