

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	23CSBTB35		
Assignment Number: 04					
Q. No.	Question				Expected Time to complete
1	Titanic Survival (Binary Classification)				
<p>Objectives:</p> <ul style="list-style-type: none"><li>🚦 Use Permutation Importance to identify which features most affect survival predictions.</li><li>🚦 Apply SHAP to explain model predictions globally and locally.</li><li>🚦 Use LIME to provide case-specific explanations for two passengers.</li><li>🚦 Compare and analyze overlap between methods.</li></ul> <p>Assignment Details:</p> <ul style="list-style-type: none"><li>• Goal: Interpret the importance of passenger attributes in predicting Titanic survival.</li><li>• Data: seaborn load_dataset("titanic")</li><li>• Model: LogisticRegression with preprocessing (OneHot + scaling)</li></ul> <p>Steps:</p> <ul style="list-style-type: none"><li>🚦 1. Train LogisticRegression pipeline.</li><li>🚦 2. Permutation Importance: Rank survival features.</li><li>🚦 3. SHAP: Summary plot + local force plot for one passenger.</li><li>🚦 4. LIME: Explain predictions for two different passengers.</li><li>🚦 5. Compare method consistency.</li></ul> <p>Deliverables:</p> <ul style="list-style-type: none"><li>• Permutation Importance chart.</li><li>• SHAP summary + one force plot.</li><li>• LIME explanations for two passengers.</li><li>• Comparative discussion.</li></ul> <p>Submission Requirements:</p> <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>					