Activity Diagram

Develop a comprehensive activity diagram for below case study. The diagram should clearly depict all activities, decision points, swimlanes for different actors, transitions, and concurrent processes, aligning with the workflow described in the case study provided below. Include annotations for initial and final nodes, forks, joins, and conditions for transitions wherever applicable.

Smart Museum Visitor Flow

A Smart Museum manages visitor movement using sensors and a mobile application. When a Visitor enters the museum, the Museum System registers the visitor and retrieves any stored preferences. If preferences are available, the system loads them; otherwise, it assigns a default tour plan. The Sensor Network then checks crowd density at the planned exhibits. If the selected exhibit is overcrowded, the Museum System dynamically reroutes the visitor to an alternative exhibit; if the exhibit is not overcrowded, the visitor proceeds to the planned exhibit.

Once the visitor starts touring, two activities occur in parallel**:** the Museum System continuously updates real-time crowd statistics, while the Mobile App provides personalized exhibit information and notifications to the visitor. During the visit, if the Sensor Network detects an emergency, the Museum System immediately redirects all visitors to the nearest exit.

At the end of the visit, the Museum System records the visitor's history, and the Mobile App collects feedback from the visitor. The workflow then terminates, marking the end of the session.

Activity Diagram Evaluation Rubrics (10 Marks)

Criterion	
Understanding of Scenario	2
Initial & Final Nodes	1
Action States	2
Decision & Merge Nodes	2
Fork & Join (Parallelism)	1
Swimlanes / Responsibility Separation	1

UML Notation & Diagram Clarity 1
Total 10 Marks