Traceability matrix

ID	Requirement	Related Use Case	Fulfilled By	Tested By	Description
1	AED should power on and perform self-test.	UC1: Power ON	AEDSimulator ,MainWindow	Run the program simulation in Qt by pressing the power on button.	Ensures the AED is operational and ready for use by conducting a self-test that checks device functionality and preparedness when powered on.
2	User should place defib pads to the patient's chest.	N/A	AEDSimulator ,MainWindow, User	Press the “Attach Defib Pads” button.	The user has to attach the defib pads to the patient so that the device can analyze the heart rhythm.
3	AED should analyze heart rhythm.	UC3: Cardiac Arrhythmia Detection	AEDSimulato, MainWindow, Patient,User	Select a heart rhythm type from the GUI.	The user selects the patient’s heart rhythm so that the AED can analyze the heart rhythm to detect irregularity in the heartbeat and decide on the need for a shock, depending on if the rhythm is shockable or not.
4	AED should advise when a shock is necessary.	UC3: Cardiac Arrhythmia Detection	AEDSimulator ,MainWindow, User	N/A	AED must analyze the heart rhythm and advise the user whether a shock is necessary or whether to administer CPR immediately.
5	AED should allow the user to deliver a shock.	UC5: Shock Delivery	AEDSimulator ,MainWindow	After the shock button is lit up to show a shock is necessary, the user is prompted to press it for the shock to be delivered to the patient`	AED allows for the delivery of a shock when it is deemed necessary, ensuring the user can respond promptly.
6	User should provide CPR to the patient.	N/A	AEDSimulator ,User, MainWindow	Select a CPR strength using the slider and press the “Apply Compression”	The user should be able to select the compression strength so that it can apply 30 compressions to the patient with that type of

				button to apply 30 compressions to the patient.	compression strength.
7	AED should provide real-time CPR feedback.	UC4: Real-Time CPR Feedback	AEDSimulator, Patient, User, MainWindow	N/A	The AED device detects the user's CPR compression strength and gives the user real time CPR feedback such as "Good Compression", "Push Harder", or "Continue CPR".
8	AED should provide post-shock care instructions.	UC7: CPR and Post-Shock Care	AEDSimulator	N/A	AED provides instructions for post-shock care, guiding the user on subsequent steps after a shock has been given.
9	AED should provide a user interface for interaction.	All Use Cases	MainWindow	Once the program simulation is running in Qt, the entire interface is displayed with fully functional buttons accounting for every possible heart rhythm and directs the user to applying the solution using the interface	AED features a user interface that facilitates interaction with all system functions and user inputs.