* **Functional Test Cases**

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| **Test ID** | **Test Case** | **Input** | **Expected Result** | **Actual Result** | **Status** |
| TID 1 | Verify the system can input patient data, medical history, and real-time vitals. | Sample patient data, historical records, and vitals. | System accepts and stores the data without errors. | System accepted and stored the data without errors. | Pass |
| TID 2 | Verify the system's ability to recommend drugs based on input data. | Various combinations of patient data and medical conditions. | System provides appropriate drug recommendations matching established medical guidelines. | System provided appropriate drug recommendations that matched established medical guidelines.  System recommended drugs tailored to individual patient factors, avoiding contraindications. | Pass |
| TID 3 | Validate personalized treatment recommendations | Patient data with specific characteristics (e.g., allergies, existing conditions). | System recommends drugs tailored to individual patient factors, avoiding contraindications. | System recommended drugs tailored to individual patient factors, avoiding contraindications. | Pass |

* **Performance Test Cases**

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| **Test ID** | **Test Case** | **Input** | **Expected Result** | **Actual Result** | **Status** |
| TID 4 | Measure system response time under normal and peak loads. | Simulated emergency scenarios with varying data input rates. | System maintains prompt response times, delivering recommendations within acceptable limits. | System maintained prompt response times under both normal and peak loads, delivering recommendations within acceptable limits. | Pass |

* **Security Test Cases**

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| **Test ID** | **Test Case** | **Input** | **Expected Result** | **Actual Result** | **Status** |
| TID 5 | Verify data encryption during storage and transmission. | Patient data and vitals. | Data remains encrypted and secure, with no breaches or unauthorized access. | Data remained encrypted and secure during storage and transmission, with no breaches or unauthorized access. | Pass |
| TID 6 | Test system's compliance with data privacy regulations (e.g., HIPAA). | Various user access scenarios. | System enforces access controls and auditing, ensuring compliance with privacy standards. | System enforced access controls and auditing, ensuring compliance with HIPAA and other privacy standards. | Pass |

* **Usability Test Cases**

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| **Test ID** | **Test Case** | **Input** | **Expected Result** | **Actual Result** | **Status** |
| TID 7 | Assess the ease of use for healthcare professionals. | interactions with the system interface. | Users can navigate the system, input data, and retrieve recommendations with minimal training. | Users were able to navigate the system, input data, and retrieve recommendations with minimal training. | Pass |