# 15. Appendix

# **Appendix**

## **A. Key Terms and Definitions**

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| Term | Definition |
| **DICOM** | Digital Imaging and Communications in Medicine - Standard format for medical imaging |
| **PACS** | Picture Archiving and Communication System - Medical imaging storage system |
| **MRI** | Magnetic Resonance Imaging - Medical imaging technique using magnetic fields |
| **HIPAA/GDPR** | Healthcare privacy and data protection regulations |
| **OHIF Viewer** | Open-source image viewer (mentioned in scope) |
| **TCIA** | The Cancer Imaging Archive - Source for publicly available DICOM images |
| **Selenium** | Open-source web testing tool |

## **B. System User Roles**

**Patient**: Book appointments, view reports, manage profile, access billing

**Technician**: Upload MRI images, manage equipment, record procedures

**Radiologist/Doctor**: Review images, generate reports, electronic signing

**Administrator**: Manage users, system configuration, analytics, security oversight

## **C. Technology Stack**

**Frontend**: HTML5, CSS3, JavaScript (React/Angular) **Backend**: Node.js or PHP

**Database**: MySQL or PostgreSQL

**Image Storage**: PACS integration with DICOM support

**Testing**: Selenium WebDriver

**Security**: HTTPS, AES-256 encryption, bcrypt password hashing

## **D. Testing Environment**

**Test Accounts**: 20 patients, 3 technicians, 2 radiologists, 2 admins

**Sample Data**: 88 DICOM images from TCIA, 20 appointments, 20 billing records

**Browser Support**: Chrome, Firefox, Safari **Testing Framework**: Selenium for automated testing

## **E. Security & Compliance**

**Data Protection**:

- Encrypted data transmission (HTTPS)

- Access control based on user roles

- Session-based authentication - Secure login system

**Regulatory Compliance**:

- HIPAA: Logs and encryption requirements

- GDPR: Consent and data deletion rights

- Audit trails and access logs

## **F. Performance Requirements**

**System Capacity**: Support at least 200 users

**Response Time**: <2 seconds response time, <60 seconds for large image uploads

**Availability**: 99.5% minimum uptime

**Mobile**: Responsive patient portal only

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