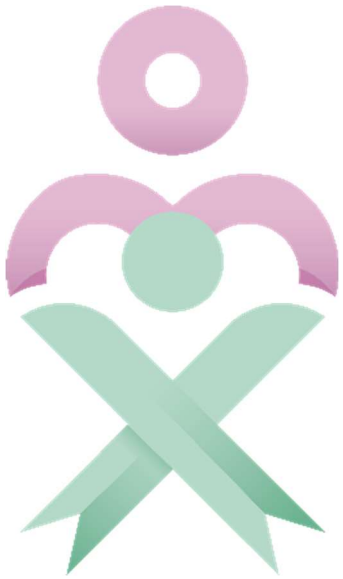

MVP System Requirements Specification (SRS)

Jisr Project – مشروع جسر

Document Approval

Approver	Title	Business Area	Approval Date

Revision History

Date	Author	Version	Summary of Changes	Status
31/10/2023	Shahad Alsuhaibani	1.0	Customize MVP requirements	Approved MVP SRS

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1. Introduction

1.1. Project Overview

Jisr (جسر) is an innovative healthcare platform designed to bridge the gap between newly diagnosed cancer patients and essential healthcare services. The platform facilitates seamless access to a wide range of professionals, including physicians, dietitians, psychologists, life coaches, chemotherapy specialists, and more. By offering a comprehensive support system, Jisr empowers patients to manage their healthcare journey, addressing both their medical and emotional needs.

1.2. Purpose of the Document

The purpose of this document is to provide a clear and detailed description of the Minimum Viable Product (MVP) requirements. It focuses on delivering the essential features necessary for initial deployment. Moreover, this document facilitates an effective communication among all stakeholders, including sponsors, developers, testers, and project manager. It serves as a reference for validating that the application meets the defined requirements, helps define the project scope and guides developers in building the software according to functional and non-functional requirements. Additionally, it aids testers in creating test cases, assists project manager in planning and estimating resources, and acts as a legal reference for agreements made between the sponsors and the development team.

2. Glossary of Terms

The following table illustrates some of the terms used in the document:

Term	Definition
Caregiver	An individual who provides assistance and support to the patient.
Healthcare provider	A person that delivers medical services to patients. Including physicians, dietitians, chemotherapy specialists, psychologists, life coaches, and pharmacists.
Clinical notes	Written records created by healthcare providers during patient interactions. These notes document important information such as medical history, symptoms, diagnoses, treatment plans, and patient progress.
Follow-up instructions	Some guidelines provided by healthcare providers to patients after a medical appointment. These instructions may include recommendations for further treatment, medication management or lifestyle changes.
OTP	Stands for one-time password, an automatically generated numeric string of characters that is used for user authentication.
BMI	Stands for Body Mass Index, a numerical value derived from an individual's weight and height. It is calculated by dividing a person's weight in kilograms by the square of their height in meters.

3. Business Requirements

3.1. Functional Requirements

REQ-ID	Description	Priority
1.0	The system shall provide 4 roles (admin, patient, caregiver, healthcare provider).	5
2.0	The system shall support Arabic and English languages.	5
	Session Management	

3.0	The patient/caregiver shall be able to sign-up after providing the following information: *An asterisk (*) denotes a mandatory field*
	• Role*:
	  ○ Format: Dropdown selection with the following options:
	  ▪ Patient
	  ▪ Caregiver
	  ○ If the option of caregiver is chosen, another dropdown list shall appear: What's your relationship to the patient:
	  ▪ Parent
	  ▪ Sibling
	  ▪ Spouse
	  ▪ Child
	  ▪ Friend
	  ▪ Other
	• Username*:
	  ○ Format: Alphanumeric characters only (a-z, A-Z, 0-9).
	  ○ Length: Minimum of 5 characters and maximum of 20 characters.
	• Full name, includes (First name*, Father's name, Last name*):
	  ○ Format: Alphabetic characters only.
	• Email*:
	  ○ Format: Must be a valid email format (e.g., example@domain.com).
	  ○ Domain Restrictions: Acceptable domains must include public domains (e.g., gmail.com, yahoo.com)
	• Phone number*:
	  ○ Format: Valid international format (e.g., +1234567890).
	  ○ Verification: Must be verified through a One-Time Password (OTP) sent via SMS.
	  ○ Length: 12 digits, including country code.
	• Password*:
	  ○ Format: Must include a combination of uppercase letters, lowercase letters, numbers, and special characters (e.g., !@#$%^&*).
	  ○ Length: Minimum of 8 characters and maximum of 20 characters.
		5

3.1	If the registration is disabled by admin, the system shall display a message indicating the patient/caregiver position in the waiting queue.	5
3.2	Once enabling the registration, the system shall notify the patient/caregiver via email.	5

4.0	The healthcare provider shall be able to submit sign-up request after providing the following information: *An asterisk (*) denotes a mandatory field*
	• Full name, includes (First name*, Father's name, Last name*):
	  ○ Format: Alphabetic characters only.
	• Email*:
	  ○ Format: Must be a valid email format (e.g., example@domain.com).
	  ○ Domain Restrictions: Acceptable domains must include public domains (e.g., gmail.com, yahoo.com)
	• Phone number*:
	  ○ Format: Valid international format (e.g., +1234567890).
	  ○ Verification: Must be verified through OTP sent via SMS.
	  ○ Length: 12 digits, including country code.
	• Password*:
	  ○ Format: Must include a combination of uppercase letters, lowercase letters, numbers, and special characters (e.g., !@#$%^&*).
	  ○ Length: Minimum of 8 characters and maximum of 20 characters.
	• Specialization*:
	  ○ Format: Dropdown selection with predefined options (e.g., cardiology, dermatology).
	  ○ Validation: Only one option should be selected.
	• Qualification*:
	  ○ Format: Text input.
	  ○ Validation: Must be a non-empty string describing the highest medical qualification.
	• Gender*:
	  ○ Format: Dropdown selection with the following options:
	  ▪ Male
	  ▪ Female
	  ○ Validation: Only one option should be selected.
	• Date of birth*:
	  ○ Format: Date input (DD-MM-YYYY).
	  ○ Validation: Must be a valid date format and in the past.
	  ○ Derived Data: Age calculated based on the current date.
	• Personal photo:
	  ○ Format: File upload (optional).
	  ○ Validation: Must meet specified format and size requirements (e.g., JPEG, PNG, max 2MB).
	• CV*:
		5

	○ Format: File upload. ○ Validation: Must be in a supported format (e.g., PDF). • Number of medical licenses: ○ Format: Numeric input.	
4.1	The admin shall be able to approve or reject signing up the healthcare provider.	5
4.2	The system shall notify the healthcare provider via email when the admin approves their account.	5
5.0	The user shall be able to log in by providing the following information: • Email or Phone number: ○ The email must be registered and verified through OTP. ○ The phone number must be registered and verified with OTP sent via SMS. • Password: The user must enter their registered password.	5
6.0	In the first login, the patient/caregiver shall provide the following information: *An asterisk (*) denotes a mandatory field* • Type of cancer*: ○ Format: Dropdown selection with all cancer types. ○ Validation: Only one option should be selected. • Type of cancer treatment*: ○ Format: Dropdown selection with the following options: ▪ Oral chemotherapy ▪ Radiation ▪ IV chemotherapy ▪ Surgical removal of the tumor ▪ Treatment plan is not decided ○ Validation: Only one option should be selected. • Medicines and doses*: ○ Input Type: Text area. • Chemotherapy History (many times has the patient undergone chemotherapy?)*: ○ Input Type: Numeric input. • Central Catheter Information*: ○ Input Type: Radio button selection. ○ Options: ▪ Yes, I have a central catheter. ▪ No, I do not have a central catheter. ○ If "Yes" is selected: Display additional dropdown for type selection: ▪ PICC line ▪ Hickman line ▪ Port-a-Cath ▪ PremCath ○ Validation: Ensure one option is selected if a central catheter is indicated • Height*:	5

	○ Format: Numeric input (in centimeters). ○ Validation: Must be a positive integer. ○ Range: Minimum of 50 cm and maximum of 250 cm. • Weight*: ○ Format: Numeric input (in kilograms). ○ Validation: Must be a positive integer. ○ Range: Minimum of 20 kg and maximum of 300 kg. ○ Historical Record: Each entry of weigh must be timestamped with the date of updating to maintain a historical record of measurements. ○ Derived Data: Body Mass Index (BMI) calculated using the formula (BMI = weight (kg) / (height (m) * height (m))) • Date of birth*: ○ Format: Date input (DD-MM-YYYY). ○ Validation: Must be a valid date format and in the past. ○ Derived Data: Age calculated based on the current date. • Gender*: ○ Format: Dropdown selection with the following options: ▪ Male ▪ Female ○ Validation: Only one option should be selected. • Region of taking healthcare*: ○ Format: Dropdown selection based on a predefined lookup table of regions in Saudi Arabia.	
7.0	The user shall be able to reset their password using email or phone number authentication.	5
8.0	The user shall be able to log out safely.	5
Profile management		
9.0	The patient/caregiver shall be able to view and modify their profile information, which include: • Username • Full name • Email • Phone number • Height • Weight • BMI • Cancer type • Cancer treatment • Medicines and doses • Chemotherapy History • Central Catheter Information • Date of birth	5

	• Gender
	• Previous appointments information:
	  o Date
	  o Healthcare provider
	  o Follow-up instructions
	• Upcoming scheduled appointments:
	  o Date
	  o Healthcare provider
	• Region of taking healthcare
	• Upload files (labs, medical reports, etc) in the format of pdf or images.	

9.1	The patient/caregiver shall be able to edit their email/phone number after authenticating the new email/phone number with OTP.	5
9.2	In case of updating the weight, the system shall update the BMI and add the latest weight to the historical record timestamped with the date of updating.	4

10.0	The healthcare provider shall be able to view their profile information, and modify the editable fields:
	• Full name (editable)
	• Email (editable)
	• Phone number (editable)
	• Specialization
	• Qualification (editable)
	• Gender
	• Date of birth (editable)
	• Personal photo (editable)
	• CV (editable)
	• Number of medical licenses (editable)
	• Previous appointments information:
	  o Date
	  o Patient/caregiver
	  o Follow-up instructions
	  o Clinical notes
	• Upcoming scheduled appointments:
	  o Date
	  o Patient's/caregiver's profile
	  o Details of issue
		5

Appointments scheduling		
11.0	The patient/caregiver shall be able to display the list of healthcare providers, categorized by their specializations.	5

11.1	Upon selecting a healthcare provider from the list, the patient/caregiver shall have access to the following detailed information: • Full name • Specialization • Qualification • Gender • Brief about their experience • Personal photo (if exists) • Available slots	5
12.0	The healthcare provider shall be able to set their availability slots for the upcoming month (slot duration is 30 minutes).	5
13.0	The patient/caregiver with completed profile shall be able to schedule an appointment with any healthcare provider if the following conditions are met: 1- Provider Availability: The selected healthcare provider must have availability in the chosen time slot. 2- Chosen slot: The patient/caregiver must schedule an appointment at least 1 hour prior to the desired appointment time. 3- Details of issue: The patient/caregiver shall provide a textual description that clarify the reason for visit.	5
13.1	In case of booking an appointment, the system shall create Microsoft Teams session and send the link to the patient/caregiver and the healthcare provider via email.	5
14.0	The system shall notify the patient/caregiver and the healthcare provider via the app and email 1 hour and 15 minutes before the session starts.	4
15.0	The patient/caregiver shall be able to cancel an appointment.	5
15.1	The system shall notify the healthcare provider via app and email if an appointment is canceled.	4
15.2	In case of canceling an appointment, the slot must be automatically marked as available.	5
16.0	The healthcare provider shall be able to view the medical profile of the patient/caregiver that scheduled an appointment with them. Which includes: • Full name • Age • Gender • Height • Weight (historical record) • BMI (historical record) • Cancer type • Medicines and doses • Chemotherapy History • Central Catheter Information • History of previous appointments:	5

	○ Healthcare provider's name ○ Healthcare provider's specialization ○ Date of the appointment ○ Clinical notes ○ Follow-up instructions • Uploaded labs and medical reports	
17.0	After completing the session, the healthcare provider shall be able to add follow-up instructions to the patient.	4
18.0	After completing the session, the healthcare provider shall be able to add clinical notes about the patient (patient/caregiver can't view).	4
19.0	After completing the session, the healthcare provider shall be able to update the medical profile of the patient.	4
Admin's Access		
20.0	The admin shall be able to display a dashboard illustrates all the registered patients/caregivers/healthcare providers, previous and booked sessions	5
21.0	The admin shall be able to share announcements and content (images), to be displayed in the patient's/caregiver's home page.	5
22.0	The admin shall be able to enable/disable registration.	5
23.0	The admin shall be able to enable/disable uploading files like labs and medical reports.	5
24.0	The admin shall be able to disable any user account.	5

3.2. Non-functional Requirements

- **Performance:**
  a. The system should handle up to 1,000 concurrent users without a significant drop in performance.
  b. The response time for any request should not exceed 2 seconds under normal load and 5 seconds under peak load.
- **Scalability:**
  a. The platform should be designed to scale horizontally, allowing for the addition of more servers as the user base grows, especially during community forum activity spikes or subscription upgrades.
- **Availability:**
  a. The system should have an uptime of at least 99.95%, ensuring that patients and caregivers can access essential services at all times, especially during critical healthcare periods.
- **Security:**
  a. All data, including user credentials, personal health information, and payment details, must be encrypted using AES-256 encryption or higher.
  b. Implement role-based access control (RBAC) with permissions ensuring that only authorized users can access certain features.

c. Use industry-standard SSL/TLS protocols to ensure secure communication between the client and server.

- **Compliance:**
  a. The system must comply with local healthcare regulations, including Saudi Arabian health data protection laws and international standards like GDPR for data privacy.
  b. Regular audits should be performed to ensure compliance with health-related regulations.
- **Usability:**
  a. The platform must be accessible to users with varying levels of technical proficiency, providing clear navigation, instructions, and error messages in both Arabic and English.
  b. The interface should meet WCAG 2.1 accessibility standards, ensuring inclusivity for users with disabilities.
- **Maintainability:**
  a. The system codebase should follow modular and clean coding principles to ensure maintainability and ease of future development or debugging.
  b. Regular software updates should be scheduled to include security patches, bug fixes, and performance enhancements.

- **Backup & Disaster Recovery:**
  a. Daily backups should be implemented, and in case of a system failure, recovery should occur within 1 hour, with no more than 1 day of data loss.

4. Technical Requirements

1. **Architecture:**
   a. The system will follow a domain-driven design monolithic architecture where each functional area (appointments, user management, subscription, forums, etc.) is divided into domains.
   b. Use Spring Boot for the backend services, and containerize them with Docker for easy deployment and scalability on Kubernetes.
2. **Platform:**
   a. The backend should be hosted on a cloud platform like DigitalOcean, using Kubernetes for orchestration and horizontal scaling.
   b. For storage, utilize managed databases such as PostgreSQL for transactional data and DigitalOcean Spaces (S3-compatible) for file storage.
3. **APIs:**
   a. The system will expose RESTful APIs for interaction between the frontend and backend.
   b. Use OpenAPI (Swagger) for API documentation to ensure clarity and consistency in API usage for developers.
4. **Frontend:**
   a. The frontend will be built using Next.js for its ability to handle both static and dynamic content, with server-side rendering and optimized performance.

b. It will utilize Tailwindcss components for a clean accessible design.
c. The mobile app will be Flutter.

5. **Authentication:**
   a. Keycloak will be integrated as the identity and access management solution, supporting SSO, OAuth2, and OTP verification for added security.
6. **Caching:**
   a. Implement Redis for caching frequently accessed data such as user profiles, healthcare provider listings, and scheduled appointments to improve response times.
7. **Monitoring & Logging:**
   a. Use Prometheus and Grafana for real-time monitoring of the application's performance.
8. **CI/CD:**
   a. Bitbucket Pipelines will be used for continuous integration and continuous deployment. It will automatically build and deploy the backend services and frontend after every successful commit to the main branch.