**System Requirements Document (SRD) INKSCAPE - Tattoo Artist Discovery Platform**

Course: Computer Science Projects  
 Lecturer: Dr. Sharon Yalov Handzel   
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**Document Information:**

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### Created By: Ido Bashari & Lior Toledano

**1. Introduction**

**1.1 Purpose of Document**

This Software Requirements Specification (SRS) document provides a comprehensive description of the INKSCAPE system - an AI-powered platform for connecting tattoo seekers with artists in Israel.

The document outlines:

* The complete functional and non-functional requirements of the system
* The system architecture and technical specifications

**1.2 System Scope**

**General Description**

INKSCAPE is an innovative platform that connects individuals seeking tattoos with their ideal tattoo artists. The system leverages advanced AI technology for image analysis and style recognition, combined with Instagram integration for up-to-date artist portfolios.

**System Boundaries**

**Included:**

* AI-powered image analysis for tattoo style matching
* Instagram integration for artist portfolios
* Style-based and geographic location-based search
* Rating and review system
* User and artist profile management
* Basic messaging system
* Appointment scheduling

**Not Included:**

* Payment processing (Optional for future implementation)
* E-commerce functionality
* Direct image editing tools

**Assumptions and Limitations**

* System operates within Israeli geographic boundaries
* Internet connectivity required for all features
* Mobile and desktop web browsers supported
* Instagram API rate limits must be respected

**2. Overall Description**

**2.1 System Context**

**Business Problem**

The current process of finding tattoo artists in Israel is fragmented and inefficient. Users primarily rely on:

* Instagram browsing, which lacks proper search and filtering capabilities
* Facebook groups with limited artist representation and inefficient search processes
* Word of mouth and random recommendations

**Current Situation**

Currently, individuals seeking tattoo artists face several challenges:

* No centralized platform for searching tattoo artists
* Limited ability to filter and compare artists by style
* Difficulty in finding artists based on specific tattoo designs
* Time-consuming process of browsing multiple Instagram profiles
* Reliance on random Facebook group responses

**Proposed Solution**

INKSCAPE addresses these challenges by providing:

* AI-powered image analysis for style matching
* Direct integration with artists' Instagram portfolios
* Advanced search and filtering capabilities
* Centralized platform for artist discovery
* Rating and review system
* Geographic-based search options

**Integration with Existing Environment**

The system integrates with:

* Instagram API for portfolio management
* Google Cloud Vision/Azure Computer Vision for AI analysis
* Mobile and desktop web browsers
* Existing artist workflows and social media presence

**2.2 Stakeholders**

**Primary Stakeholders**

1. Tattoo Seekers (Users)
   * Need: Easy way to find suitable tattoo artists
   * Requirements: Search functionality, style matching, reviews
   * Interface: Web application
2. Tattoo Artists
   * Need: Platform for client acquisition
   * Requirements: Portfolio display, client communication
   * Interface: Artist dashboard
3. Studio Managers
   * Need: Increased studio visibility and client flow
   * Requirements: Enhanced visibility through artist profiles and studio representation in the platform
   * Interface: Indirect interaction through artist profiles, without direct access to a management dashboard

**Stakeholder Interactions**

* Users → Artists: Search, communication, reviews
* Artists → Users: Portfolio display, responses
* Studio Managers → System: Visibility through artist profiles, no direct profile management
* System → All: Notifications, updates

**2.3 Key Use Cases**

**Primary Scenarios**

1. Style-Based Artist Search
   * Primary Actor: User
   * Main Flow:
     1. User selects tattoo style from catalog
     2. System displays matching artists
     3. User filters results by location
     4. User views artist profiles and portfolios
2. AI-Powered Image Search
   * Primary Actor: User
   * Main Flow:
     1. User uploads reference image
     2. System analyzes image using AI
     3. System matches with similar style artists
     4. User reviews matches
3. Artist Profile Management
   * Primary Actor: Artist
   * Main Flow:
     1. Artist creates/updates profile
     2. Connects Instagram account (optional)
     3. Sets availability and location
     4. Manages portfolio visibility

**Additional Features**

* Messaging system between users and artists
* Appointment scheduling capabilities
* Favorite artists bookmarking
* Rating and review system
* Price range filtering (optional)
* Instagram followers count filtering
* Tag-based search and filtering (optional)

**Flow Process**

**1. User Entry Point**

**Guest User Browsing**

* Guest users can browse the platform and perform basic searches without registration
* Available actions:
  + Search for tattoo artists using filters (style, location, price range)
  + View artist profiles and portfolios
* Unavailable actions for guest users:
  + Writing reviews
  + Sending messages to artists
  + Using the AI-powered image analysis feature
  + Booking appointments

**User Registration/Login**

* Registered users gain access to all platform features, including:
  + Sending messages to artists
  + Using AI image analysis for style matching
  + Booking appointments
  + Writing reviews and submitting ratings

**Profile Type Selection (Artist/User)**

* During registration, the user selects their profile type (Artist or User)

**2. Core Search Process**

**Style Catalog Browsing**

* Browsing a catalog of tattoo styles

**AI Image Analysis**

* Available only to registered users
* Uploading an image for AI-based style matching with artists

**Filter Application**

* Applying filters such as location, price range, and tags

**Results Viewing and Sorting**

* Viewing search results and sorting them based on selected parameters

**3. Interaction Flow**

**Viewing Artist Profiles**

* Fully accessible to both guest and registered users

**Messaging and Scheduling**

* Available only to registered users

**Booking Management**

* Available only to registered users

**Review and Rating Submission**

* Available only to registered users

**3. Functional Requirements**

**3.1 Core Requirements**

**A. User Authentication**

* Registration and login system
* Role-based access control
* Profile management

**B. AI Image Analysis**

* Style recognition
* Element categorization
* Artist matching algorithm

**C. Search Engine**

* Multi-parameter search
* Geographic filtering
* Real-time results update

**D. Instagram Integration**

* OAuth authentication
* Portfolio synchronization (6-hour intervals)
* Cache management

**E. Rating System**

* User reviews
* Verification system

**3.2 Business Processes**

**A. User Flow**

* Image/style selection
* AI analysis
* Artist matching
* Filter application
* Result presentation

**B. Artist Onboarding**

* Profile creation
* Instagram connection
* Style selection
* Verification process

**C. Review System**

* Rating submission
* Experience verification
* Automated updates

**3.3 External Interfaces**

**A. Instagram API**

* Authentication: OAuth
* Data sync: Portfolio content
* Caching: 6-hour retention

**B. AI Vision Services**

* Provider: Google Cloud Vision/Azure
* Features: Style recognition, element detection
* Response format: JSON

**4. Non-Functional Requirements**

**4.1 Performance Requirements**

* Image analysis: < 5 seconds
* Search results: < 2 seconds
* Profile loading: < 2 seconds
* Instagram sync: < 5 seconds

**4.2 Security & Privacy**

**A. Authentication**

* Secure password rules
* Multi-factor authentication
* Session management
* Brute force protection

**B. Data Protection**

* End-to-end chat encryption
* HTTPS implementation
* Encrypted storage

**4.3 Usability & Accessibility**

* Mobile-first design (optional)
* RTL/LTR support
* Multi-language (HE/EN)

**5. Architectural and Technological Requirements**

**5.1 System Architecture**

**A. Core Components**

* Frontend: React-based web application
* Backend: Node.js REST API
* Database: Supabase (PostgreSQL)
* Services: AI Analysis, Instagram Integration

**B. Key Patterns**

* Client-Server Architecture
* Event-Driven Communication

**5.2 Technology Stack**

**A. Development**

* Frontend: React/ Vite
* Backend: Node.js/ Express
* Database: Supabase
* AI: Google Cloud Vision/Azure
* Version Control: Git

**B. Infrastructure**

* Cloud Hosting
* Load Balancers
* Monitoring Tools (optional)

**5.3 Data Management**

* Primary: Supabase
* Cache: Redis
* Files: Cloud Storage