Procurement Module

Software Requirements Specification

Version 1.0

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Introduction

1. Purpose

This Software Requirements Specification (SRS) document outlines the functional and non-functional requirements for the Procurement digitalized module. The system is designed to automate and streamline the procurement process for KP procurement team, adhering to the guidelines set forth by the Khyber Pakhtunkhwa Public Procurement Regulatory Authority (KPPRA). This document serves as a blueprint for the development and implementation of the system, ensuring it meets the specific needs and objectives of KP procurement team.

2. Scope

The procurement digitalized module focuses on the procurement workflow, including bid submission, evaluation, contract generation, and supplier payment processing. Excluded from this scope are any functionalities related to [list any excluded functionalities, e.g., user management, system administration].

3. References

- Khyber Pakhtunkhwa Public Procurement Regulatory Authority (KPPRA) Guidelines ([http://www.kppra.gov.pk/kppra/download_new.php?action=Procurement%20rules])

- Khyber Pakhtunkhwa Revenue Authority [https://kpra.kp.gov.pk/]

Overall Description:

1. Product Perspective

The procurement module is a software application designed to automate and streamline the bid lifecycle management process for Procurement team instead of manually managing procurement process. It caters to the needs of procurement specialists and stakeholders within the organization, specifically focusing on:

- **Bid submission and management:** Facilitates the submission and management of bids while ensuring adherence to KPPRA regulations.
- **Bid evaluation and ranking:** Enables efficient evaluation of bids based on user-defined criteria and subsequent ranking based on calculated scores.
- **Contract generation and management:** Supports the creation, review, editing, and electronic signing of contracts with suppliers.
- **Supplier payment processing:** Provides visibility into supplier payment status and ensures secure and reliable processing aligned with contract terms

2. Operating Environment

The procurement module is designed to operate within the following environment:

- **Hardware:** Standard office computing hardware with sufficient processing power and memory to meet the anticipated user load.
- **Operating System:** A widely supported operating system (e.g., Windows 10, Linux Ubuntu) with stable performance.
- **Database:** A relational database management system (e.g., MySQL, PostgreSQL) to store and manage bid-related data, bidder information, and contract details.
- **Web Browser:** A modern web browser (e.g., Google Chrome, Opera) to access the user interface of the procurement module.
- **Internet Connection:** A reliable internet connection with a minimum bandwidth of 10 Mbps to ensure smooth operation.

3. Design and Implementation Constraints

The development and implementation of the procurement module will be subject to the following constraints:

- **Development Budget:** The development must adhere to a pre-defined budget that will influence the selection of technologies and functionalities.

- **Development Timeline:** The module needs to be completed within a specific timeframe, which may necessitate trade-offs between features and functionalities.
- **Technical Expertise:** The development team's skills and experience will influence the choice of technologies and development methodologies.
- **KPPRA Regulations:** The system must strictly adhere to the guidelines and regulations set forth by the Khyber Pakhtunkhwa Public Procurement Regulatory Authority (KPPRA).

4. Assumptions and Dependencies

The following assumptions and dependencies are made for the successful implementation of the procurement module:

- A stable and reliable IT infrastructure is available to host the application and database.
- Users will have basic computer literacy and internet browsing skills.
- Necessary IT support will be available to address user queries and technical issues.
- Third-party payment processing integration will be established to facilitate secure financial transactions.

System Features:

1. Functional requirements:

.ProcurementSubmission

- The system should allow the user to submit the bidding document format for the bid they are working on.
- The system will check the submitted format if it is to the standard KPPRA bid document format.

.ProcurementMethodCheck

- The system will check if the submission process should be compatible with the specified procurement method (single or two-stage envelopes).

.AdvertisementDisplay

- The system should provide a field for the user to specify the number of days the advertisement will be displayed.
- The system should validate if the specified number of days is a positive integer.

.BidderListDisplay

- The system should display a comprehensive list of all bidders participating in the bidding process and bid-related information for each bidder, such as bid amount, bid submission date, and any additional relevant details.

. BidSecurityFeeInput

- The system should provide functionality for the user to input bid security fee information.
- The system should validate the bid security fee information to ensure it meets the specified requirements.

.BidEvaluation

- The system shall allow user to input evaluation criteria.
- The system shall calculate bid scores based on the criteria provided by the user.
- The system shall rank the bids according to the calculated bid scores.
- The system shall send a notification to the winner of the bid.

.BidOrderGeneration

- The system shall generate bid order displaying details about bidder information, financial information, bid points and service/product detail.

.ContractCreation

- The system shall allow the user to create a contract with their own terms and conditions.
- The system shall provide a mechanism for the user to review and edit the contract before it is signed.
- The system shall allow the signing of the contract by both the user and the selected firm.

.BidPayment

- The system shall display the processing of supplier payments.
- The system shall ensure secure and reliable processing of supplier payments in accordance with the terms and conditions specified in the contract.

Data Requirements:

Data Acquisition and Maintenance:

DA-1: Acquire bidding document formats submitted by users.

DA-2: Validate submitted formats against the standard KPPRA bid document format.

Data Integrity:

DI-1: Protect the integrity of bid-related, bidder, and contract data.

DI-2: Implement validation techniques for data accuracy.

Data Retention Requirements:

DR-1: Define policies for retaining data on advertisement display duration.

DR-2: Specify retention policies for bid-related information, bid security fees, evaluation criteria, and contract details.

Data dictionary:

Data element	description	Composition or data types	length	values
Bidding document	The document submitted by the user for the bid based on standard KPPRA bid document format.	File	variable	
Advertisement days	The total number of days an advertisement of the bid will be on display.	Integer	2-3	

Bid	It is an offer which will be submitted by the bidder through a procurement tendering process.	Object		
Bidder	A stakeholder who participates in the bidding process.	Object		
Bid Security fee	The bid security fee is the amount which secures a bid with a guarantee.	Numeric, dollars/cents.	variable	
Bid score	The weighted total of the purchase price which calculated by the technique that ranks bids based on multiple criteria and their importance.	Integer	100	
Bid order	The order generated by the system displaying details about vendor information, financial information, bid points, and service/product detail	Object		
Contract	The contract created by the user with their own terms and conditions.	File	variable	
Bid Payment	The fee amount which KP tourism procuring department will pay.	numeric	variable	

Data report:

Report ID	KPTPM-RPT-1

Report Title	Bid Submission History
Report Purpose	The procuring entity will use the report to review the firms that have submitted the bid for our procurement advertisement and check whether they have submitted bid in the past and are they reliable.
Priority	Medium
Report Users	Procuring entity
Data sources	Database of previously submitted bids.
Frequency and Disposition	The reports will be generated by the procuring entity whenever they need and it will contain data up till the last bid submitted from the database.
Latency	The report will be provided to the user within 1 minutes.
Visual Layout	Portrait mode
Header and Footer	The report will show the user's name and the date of generation at the header and the footer will have the KP tourism logo as well the page number.
Report Body	Fields shown and Column headings • Bid names. • Firm names. • Bid submission date. • The descriptions of the bids. Selection criteria: Name wise selection or Bid wise selection. Sort criteria: Firms with most bid to least bids.
End of report indicator	A big logo of KP tourism at the end signaling the end.
Interactivity	The procuring entity can search the information about the bid like bid name ,bid security fee, bid description.
Security access restriction	Only verified members of the procuring committee can generate the report.

External Interface Requirements:

User Interface Requirements

UI-1: The system should provide a user-friendly interface for the user to input the bid document, specify the number of days for advertisement display, submit bids, input bid security fee information, input evaluation criteria, and create a contract. The interface should be intuitive and easy to navigate through notes displayed at every step.

UI-2: The system should provide a user interface for the user to view the list of all bidders, bid-related information for each bidder, bid security information, bid scores, and the efficient processing of supplier payments with tutorials of payment processes.

Software Interfaces:

SI-1: The system should interface with a database to store and retrieve bid documents, bidder information, bid security fee information, evaluation criteria, and contract information.

SI-2: The system should interface with a payment processing system to ensure secure and reliable processing of supplier payments. The system should be able to send and receive data from this system.

Communications Interfaces

CI-1: The system shall send an Email to notify the Bidder to confirm acceptance of bid.

CI-2: The system shall send a contract to Bidder approved by the procuring team.

Quality Attributes

6.1 Usability Requirements

USE-1: 93% of new users shall be able to successfully submit a bid without errors on their first try.

6.2 Performance Requirements

PER-1: The system shall accommodate a total of 100 users and a maximum of 40 concurrent users during the peak usage time window of 10:00 A.M. to 7:00 P.M. local time, with an estimated average session duration of 8 minutes.

PER-2: 85% of bid submission processes shall complete within 3 seconds from the time the user submits the bid over a 10 Mbps or faster Internet connection.

PER-3: The system shall display confirmation messages to users within an average of 3 seconds and a maximum of 6 seconds after the user submits a bid.

6.3 Security Requirements

SEC-1: All network transactions that involve financial information or personally identifiable information shall be encrypted per BR-6.

SEC-2: Only authorized Procuring Managers shall be permitted to work with bids, per BR-9.

SEC-3: The system shall permit Users to view only bids that they placed.

6.4 Safety Requirements

SAF-1: The user shall be able to see a list of all bid-related info for 60 minutes to ensure that the confidential data of bidders is protected and closed properly.

6.5 Availability Requirements

AVL-1: The system shall be available at least 90% of the time between 9:00 A.M. and 10:00pm local time excluding scheduled maintenance windows.

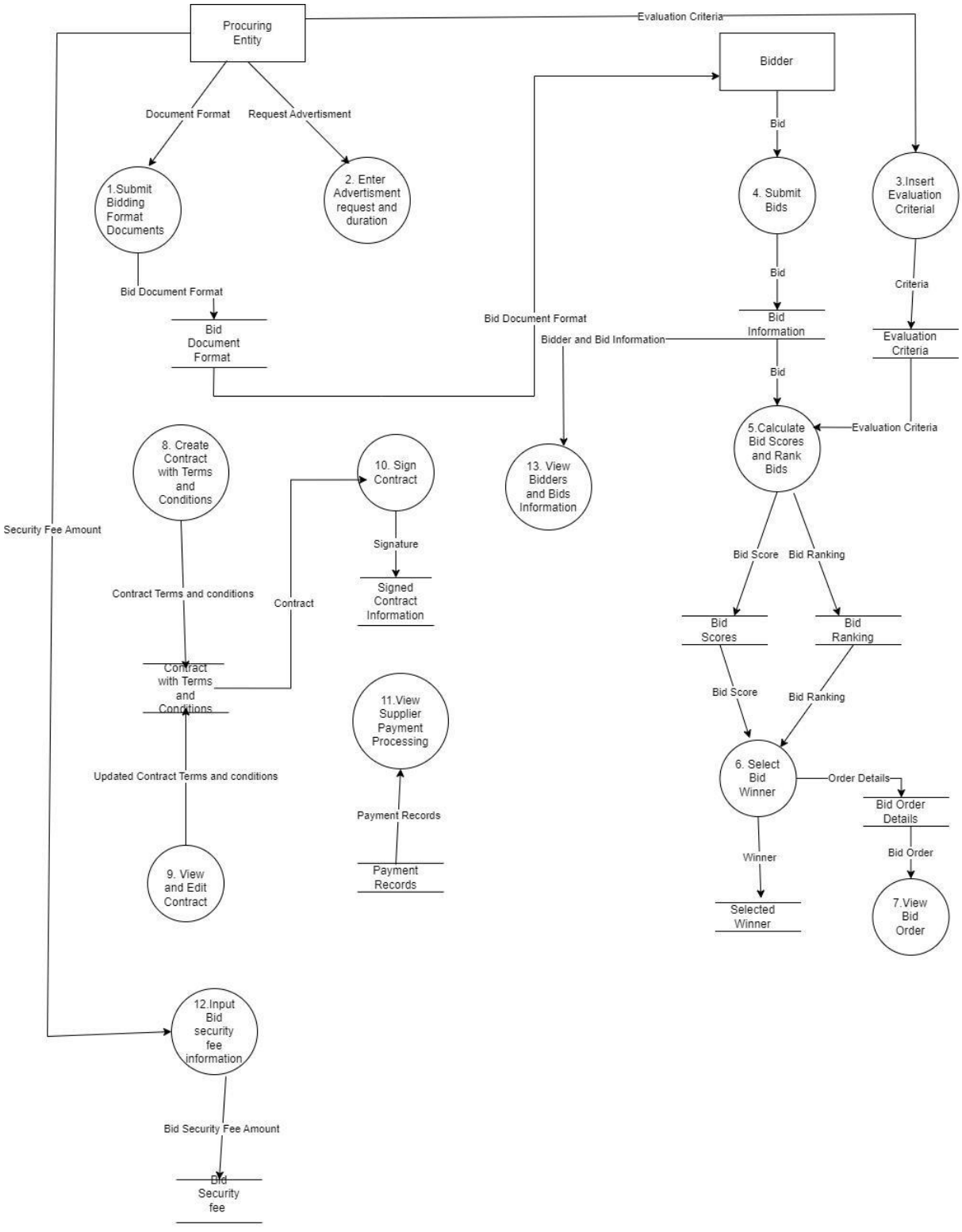
6.6 Robustness Requirements

ROB-1: If the connection between the user and the system is broken prior to a new bid being either confirmed or terminated, the system shall enable the user to recover an incomplete bid and continue working on it within 4 seconds.

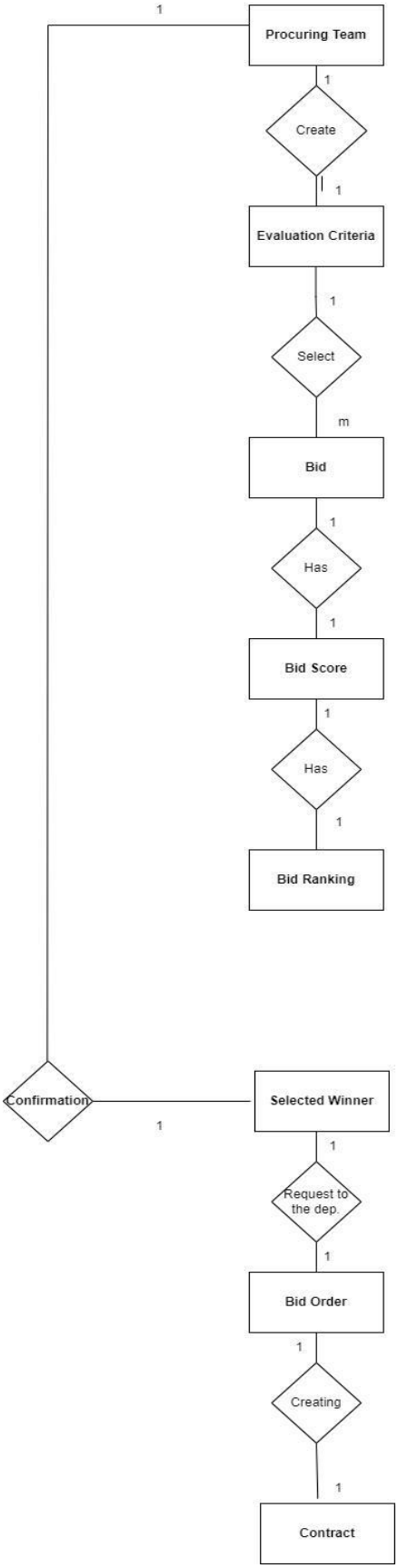
ROB-2: If the bidder doesn't submit the required bid and performance security then the system will show an error message and stop further operation in 2 seconds.

Diagrams

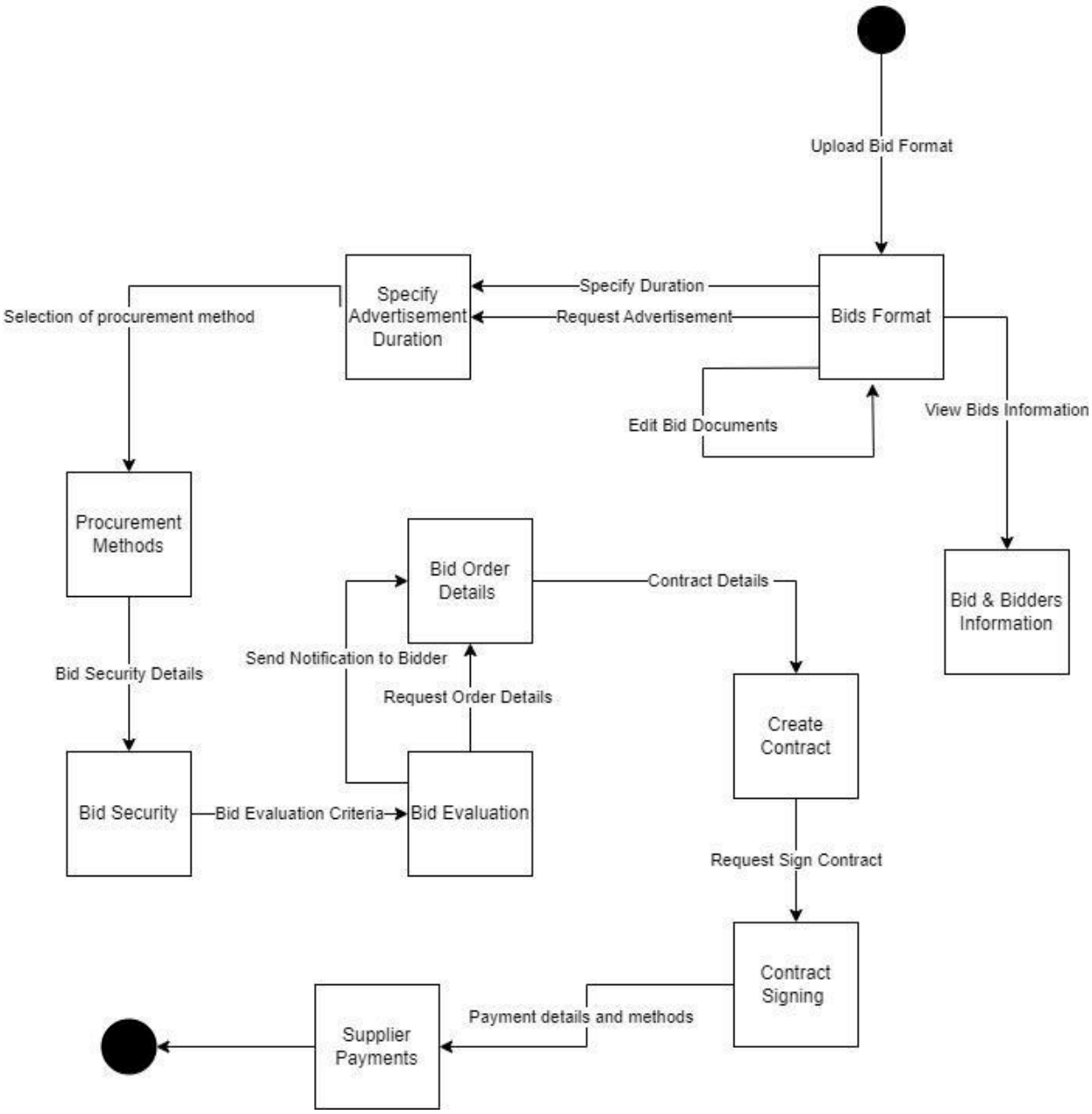
1. Data Flow Diagram:



2. Data model diagram:


Procuring Team
Create
Evaluation Criteria
Select
Bid
Has
Bid Score
Has
Bid Ranking
Confirmation
Selected Winner
Request to the dep.
Bid Order
Creating
Contract
1
m

3. Dialogue Map:



TEST CASES:

Procurement Submission:

Scenario: User submits a bidding document

Given the user is working on a bid

When the user submits the bidding document

Then the system should check if the document matches the standard KPPRA bid document format

Bid Evaluation :

Scenario: Evaluate and rank bids

Given the user bid doesn’t fulfill evaluation criteria

When the system calculates bid scores

Then the system should show “not accepted” to the bidder.

Advertisement Display :

Scenario: User specifies advertisement display duration

Given a field for entering the number of days for advertisement display

When the user enters negative number of days.

Then the system should show that the number is not a positive integer.

Bidder List Display :

Scenario: Display list of bidders

Given the bidding process

When a user views the bidding process

Then the system should display a list of all bidders with their bid-related information

Bid Security Fee Input :

Scenario: Input bid security fee information

Given a function to input bid security fee information

When the user inputs wrong bid security fee

Then the system should show a message that the bid security is wrong.