GÖTÜR Project

System-Wide Requirements

Version 1.1

Prepared By:

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Revision History

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| **Date** | **Version** | **Description** | **Author** |
| 01/04/2022 | 1.0 | Draft 1 | MESE TEAM |
| 09/04/2022 | 1.1 | - Bullet lists are changed with numbered list to increase traceability.  - Section 4.1 updated to give more clear page and navigation definitions.  - Requirements related to licensing information moved to section 7.1  - Section 3.1 updated to elaborate usability in more quantifiable manner.  - First 5 requirements in section 3.4 moved to section 7.3  - Some requirements in section 4.1 moved to section 2. | MESE TEAM |

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GÖTÜR

System-Wide Requirements Specification

# Introduction

This document is aimed to supply system-wide requirements that are not described as use cases for the project GOTUR.

# System-Wide Functional Requirements

1. The system will store all purchases with their order details for various purposes such as fraud detection and prevention, trend analysis.
2. Access to the system shall use OAuth 2.0 protocol to authenticate all users.
3. The system will store all login information with its metadata up to last 6 months to ensure the user security.
4. The system will logout the user after 15 minutes of idling.
5. Users will be able to request deletion of their account and all data related to their account.
6. All dependencies used are expected to be explicitly licensed as open source.
7. All data, hence the database applications and clients are expected to be secure.
8. The database instances will only be accessible by the application servers.
9. Servers that run the database engines will reject all connections sourcing from the public internet.
10. System will not store any passwords in plain text.
11. All system will communicate over TLS.
12. System will process online purchases only thorough BTK.
13. System can use services such as Cloud Flare for security purposes.
14. The system will allow a customer to create their accounts through a trusted credential providers such as Facebook and Google accounts.
15. Customers shall be able to add/remove items with a single click.
16. Customers shall be able to add/remove multiple items from the same panel on the page.
17. Store manager will be able to edit all details of available products.

# System Qualities

## Usability

1. The system will require and verify only e-mail and phone number upon account creation for customers.
2. The system will resemble the existing systems to familiarize the users and reduce the learning curve.
3. A customer should be able to give an order within 10 clicks upon selection of desired goods.
4. The system will provide step back functionality to allow users to edit their order related information.
5. A customer will be able to clear all of their selections for a purchase at any time until successful order.
6. System messages shown to user will include current state of the process as well as next actions that can be performed.
7. Customers will be able to give ratings of their experience of using the system upon completion of their purchases.

## Reliability

1. System will be available 7/24.
2. Functional uptime of the system will be 164 hours per week (98%).
3. Maintenance window for the system will be 4 hours per week.
4. System will be subject to a general health check mechanism that checks the status of all system components every 30 seconds.
5. System will only support payment via credit/debit card to prevent accounting errors.
6. System will run on multiple instances in isolated environments for redundancy.
7. Upon significant service availability issues, mean time to repair shall be 1 hours.
8. Upon detection of minor defects such as GUI glitches, mean time to repair shall be 24 hours.
9. Upon detection of critical errors resulting with the general operation of the system is degrading, system will only allow idempotent operations.
10. System shall have restore points for databases to allow rollback to a previous deployment for each release.
11. System shall store read replicas for all databases up to 14 days for data integrity.
12. Data older than 1 month will be removed from the actual database and archived in an isolated data vault.
13. The system will allow maximum 4.5 released defects per function point.
14. Upon detection of online payment issues, system will prompt to offer payment at the door.
15. In case of an unforeseen error where repair time cannot be estimated, system will serve a static maintenance page to the users.

## Performance

1. System will allow 100 concurrent users performing any operation on the system for the initial release.
2. The web page will be loaded within 10 seconds assuming that the client meets the required conditions.
3. System will respond within 5 seconds on a user input including communication overhead.
4. A new instance for any system module shall startup in 15 seconds.
5. An order shall be completed with maximum 15 transactions.
6. The load will be balanced with round robin strategy when there is more than 1 identical instance running for the same system function.
7. Overall order processing speed will depend on available couriers.

## Supportability

1. All system modules shall support external configuration via variables or files.
2. System shall scale up to support 10000 concurrent transactions.
3. System will scale up by increasing the number of running servers upon reaching total computational load of 70% to prevent throttling.
4. System will scale down by shutting down servers that is under 20% load (i.e. idle servers).
5. System will provide FAQ for the customers.
6. Every software component developed will have step by step documentation packaged with its source code to define the overall functionality and how to build the executable artifact from it.
7. Software build process will be automated where applicable.
8. Every operation that can be performed by non-customer users shall have a quick guide.
9. System shall provide an instant messaging functionality to both customers and helpdesk operators.
10. A new product shall be able to be added to the system within 10 minutes by the store manager.
11. A new release will be provided every 3 weeks.
12. Maintenance and fix releases will be provided whenever necessary.

# System Interfaces

## User Interfaces

### Look & Feel

1. The product will have single web page; contents of the page will differ for each type of user.
2. Product shall be created with conventional e-commerce look for customers.
3. All planes and panels will be round tipped.

### Layout and Navigation Requirements

1. Products shall be grouped together with their respective categories.
2. Landing page will contain the most preferred products.
3. Customers will be able to navigate back to prior panel/dialog until successfully placing the order.
4. Couriers will be able to mark the order status.
5. Store manager will be able to list order history.

### Consistency

1. System shall navigate to next page only on successful completion of current transaction is completed on the server side.
2. System will show a loading prompt to user during the transactions.
3. Undoable actions will prompt a confirmation message.
4. System will store the latest session details to recover the current state of a user in case of connection errors.
5. System will present the products in the same order and layout.
6. System shall support different item listing preferences.
7. All interactions will prompt a temporary success/failure message to the user.
8. In case of an inconsistency between the user session and server state, the state at the server side will be considered to true.

### User Personalization & Customization Requirements

## Interfaces to External Systems or Devices

### Software Interfaces

1. System shall process payments with official API’s offered by BTK.
2. System can navigate customers to relevant pages for payment process steps if required.

### Hardware Interfaces

1. The system will run on Amazon Web Services.
2. No user data will be stored or processed in the on premise hardware.
3. Hardware specs and Amazon Web Services availability rules will apply to the system.

### Communications Interfaces

1. System will interact and process data with its own Rest API.
2. System shall use a 3rd party API verified by the BTK for the payment process.

# Business Rules

## Purchase Promotions

### Initial Purchase – ID 1

1. If a customer is using the system for the first time and the total cart value is greater than 50TL, 5% discount up to 10TL will be applied to that order.

### Consecutive Purchase – ID 2

1. If a customer completes 10 different purchases greater than 100TL within a month then 50TL voucher coupon will be given to a customer.
2. This rule applies only once per month.

### Stock Reservations – ID 3

1. The system will reserve the selected goods for the customer for 3 minutes to prevent out of stock incidences.
2. Warehouses will reserve up to 10% of the goods to supply ongoing purchase operations.

# System Constraints

1. System shall be implemented as a single monolithic application for rapid prototyping.
2. System will be designed in modular way so that any given module can be extracted as a new software system to support scaling different factors of the application.
3. The main programming language for the system implementation is Java 1.11.x.
4. System application should be usable with any Java EE web application container that is compatible with the Servlet 2.4 and JSP 2.0 specifications.
5. The view technologies that are to be used for rendering the application are Java Server Pages (JSP) along with the Java Standard Tag Library (JSTL).
6. A single application server instance shall have at least 8GB of RAM, 2.4 GHz CPU and 20 GB free disk space.
7. The general 3rd party technologies required for the system is as following:
   * Java SDK 1.5.x or later
   * Ant 1.7.x
   * Tomcat 5.x.x
   * JUnit 4.4

# System Compliance

## Licensing Requirements

1. The core module of the system will be subject to intellectual property rights.
2. The main dependency source will be an artifact repository such as mvnrepository. Through the Maven Artifact index, all licensing info will be available.
3. The system shall comply the licensing requirements as per dependencies. This also applies to cases where an artifact usage from another source such as github.

## Legal, Copyright, and Other Notices

1. The system will provide service to the customers that accepted the Distant Sale Agreement.

## Applicable Standards

1. System will comply with KVKK.
2. System will comply with BTK standards.
3. System will comply with BDDK rules for payment processing.
4. System will run on Linux based environments.
5. Principal development and operations shall be performed on Ubuntu Server LTS.
6. System shall support containerization with Docker.
7. User interface will be available on all major browsers.
8. User interface will support different resolutions.

# System Documentation

1. All modules and architectural rules applied to the system will be documented with Markdown format for development and operations activities by the developers and IT employees that run the system.
2. All documentation, including the User manuals, Quick Guides etc. will be stored on the version control system.
3. User manual will be presented as Frequently Asked Questions (FAQ).
4. FAQ will be created by the developer/designer that created the actual system or visual presentation.