

Requirements Document

Highland Basic Order Tracking System

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GLOSSARY OF PROJECT-SPECIFIC TERMS	
Glossary of Software Engineering Terms	A standard glossary of software engineering terms is maintained at www.elucidata.com/refs/seglossary.pdf . Terms specific to this project are maintained below.
Basic Order Tracking System	Software to be developed during this project.
BOTS	Acronym for Basic Order Tracking

INTRODUCTION

This is the requirements document for the Basic Order Tracking System (BOTS) database application.

PURPOSE

The purpose of this requirements document is to expand upon the goals described in the BOTS project plan. The requirements document is an intermediate step, where the functionality of the application is described in sufficient detail to support a formal design effort.

SCOPE

In technical terms, the requirements described in this document are called system definition requirements. The development methodology for this project places system definition requirements as a middle tier between high-level requirements and design requirements, as shown here:

Requirements Class	DB Requirement Class Artifacts	
	Processing Focus	Storage Focus
High-Level Requirements (Goals) [Project Plan]	Use Cases User Community Desc Shell Capabilities	Operational Data Area Desc Reference Data Area Desc
System Definition Req's (Req's) [Req'ts Doc]	Core Application Requirements Functional Requirements Design Constraints	Logical ERD Entity Descriptions
Design Requirements (Elements) [Design Doc]	Menus Forms Operations Queries & Reports	Physical ERD Data Dictionary Access Control Hierarchy
	Business Rules	

As with system goals, system definition requirements focus on describing "what" features will exist as opposed to "how" features will be implemented. In database applications, five basic classes of system definition requirements are defined:

LOGICAL DATABASE DESCRIPTION

The logical database description is a conceptual view of the major classes of data that are to be stored and manipulated by the application. A logical Entity Relationship Diagram (ERD) commonly represents this type of requirements description. The logical ERD illustrates the relationships between the major classes of data, without describing all of the intermediary and support data entities that will be required for the actual implementation. This high-level diagram serves as a communications bridge between the user community and the development team.

ENTITY DESCRIPTIONS

Each class of data is represented in the ERD as a separate entity, with only a name. The additional information describing each entity is included in a separate entity description form. The entity description includes basic text describing the purpose of the entity, as well as basic metrics such as record load and transaction volume estimates. These are used during the design stage to tune the database structure for optimum performance.

CORE APPLICATION REQUIREMENTS

This class of system definition requirements focuses on those functions and features that are common to nearly every database application. These functions include a standard method of accessing each data area (module), a standard flow of control for querying, sorting, entering and retrieving data, and standard methods for initiating reports and other operations. Although the specifics may vary from module to module, the general operations and flow of control remain the same, providing a familiar environment to the end-user and minimizing training efforts when new modules are added.

FUNCTIONAL REQUIREMENTS

This project reserves the term "functional requirements" to those requirements defining specific functionality not included in the core application requirements. Functional requirements extend the Goals described in the project plan to include high-level descriptions of module access techniques, listing and detail data displays, predefined searches, reports and operations.

APPLICATION OVERVIEW

Highland management envisions a database application that will support basic order entry and shipping operations, and transmit fulfilled order data to the Highland billing and accounting systems. Although the initial development effort will be only to support core features that are critically required for successful order entry and fulfillment, the application will be developed using open, standards-based technology that facilitates integration with other systems, additional development, and significant scalability.

DESIGN CONSTRAINTS

The application design shall take into consideration the anticipated implementation architecture described in the technical approach section of the project plan. The application design shall refine the infrastructure architecture definition so that it also satisfies the following design constraints:

USER INTERFACE

The application design shall anticipate a browser based graphical user interface for all functions except database administration, ad hoc querying and ad hoc report generation.

NETWORK INTERFACE

The application design shall anticipate a TCP/IP network interface operating at a minimum of 10 Mbps. This is a normal capability of current Local Area Network (LAN) technology.

MULTIPLE USERS

The initial implementation of BOTS shall support a maximum of 10 simultaneous users.

SUMMARY LISTING PERFORMANCE

In database applications, summary listing performance will vary dramatically, depending on the complexity of the query or sorting operation preceding the display of the listing. Core performance, therefore, is based on simple searches and sorts, using a single indexed field. For searches and sorts of this type, the system will respond with the presentation of the first summary listing screen within ten seconds.

DATA ENTRY & DETAIL DISPLAY PERFORMANCE

When a user clicks on a summary listing record, the system will display the detail data entry / review page associated with that record within five seconds.

REPORT GENERATION PERFORMANCE

When a user initiates a predefined report, the first page of the report will be generated within 15 seconds after completion of the necessary query operation.

RELIABILITY

The system will be available 90 percent of the time during normal business hours (8 AM to 5 PM), with the exception of Designated Service Time (DST). The DST period shall be on Friday afternoons from 3 PM to 5 PM. During DST, normal database maintenance will be performed and the database may be taken offline during this period.

SCALABILITY

The system shall be implemented using software and hardware capable of supporting five times the initial data load and number of users.

PORTABILITY

The system shall be implemented using database server, client, and third party query and reporting tools that support open standards such as SQL, Java/JavaScript and HTML.

REFERENCES

The following standards were used as guides to develop this requirements document. The standards were reviewed and this content tailored to the specific needs of this project.

- IEEE 830-1988: Standard for Software Requirements Specifications
- IEEE 1012-1988: Standard for Software Validation and Verification Plans
- SEI/CMM: Software Requirements Management Key Process Area

REQUIREMENTS

REQUIREMENT IDENTIFIERS

To facilitate traceability between high-level requirements, system definition requirements, and system design requirements, this development methodology mandates requirement identifiers in the following format:

High-level requirements, or system goals, are defined in the project plan and identified with the letter G, a sequential number, a hyphen, and the system acronym (BOTS). For example, the first goal for this project is identified in the project plan as **G1-BOTS**. This indicates that this is the first high-level requirement, or goal for the system acronym project.

The letter R, a sequential number, a hyphen, and the parent goal that this requirement satisfies, in whole or in part, identify system definition requirements, also referred to simply as “requirements.” For example, the third requirement for a typical project could be identified as **R3-G2**. This indicates that this is the third system definition requirement, and is traced to the second high-level requirement for the project.

LOGICAL DATABASE DESCRIPTION & ENTITY DESCRIPTIONS

R1-G1

The BOTS design shall be based on the logical Entity Relationship Diagram (ERD) and related entity descriptions included in a separate document available at:

www.elucidata.com/elcd_100/100-02-01.pdf

This document is maintained separately due to its highly graphical nature and heavily cross-linked structure. Including the ERD within this document would significantly disrupt the pagination and flow of this document.

CORE APPLICATION FUNCTIONS

The following functions and features are common to nearly every database application. They include a standard method of accessing each data area, a standard flow of control

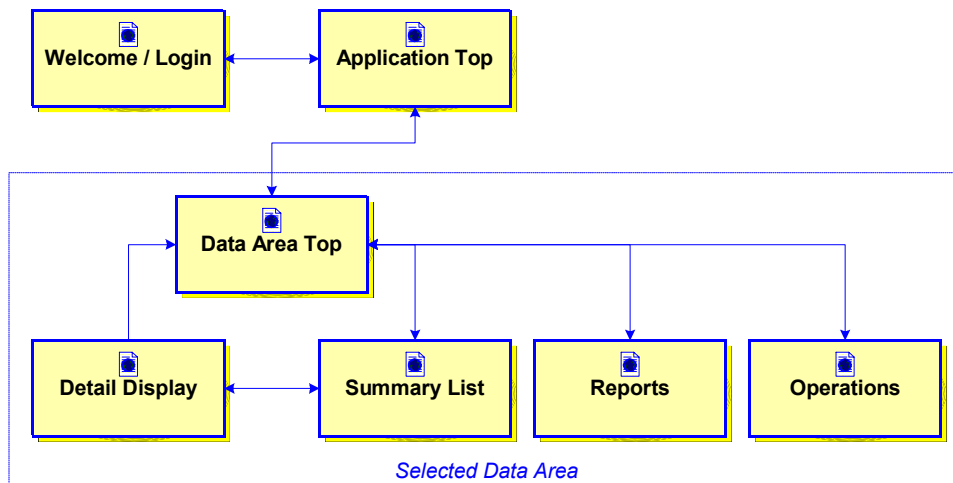
for querying, sorting, entering and retrieving data, and standard methods for initiating reports and other operations. Although the specifics may vary from module to module, the general operations and flow of control remain the same, providing a familiar environment to the end-user and minimizing training efforts when new modules are added.

Describing these core application functions here eliminates the necessity to repeatedly describe them within each module requirement set. Instead, these features are included by inference within each module, unless specific core features are altered or removed for a particular module.

FLOW OF CONTROL

R2-G1

The flow of control for this application begins at the application homepage, where the user is presented with basic information about the application and the opportunity to log on to the system. Once the user has successfully logged on, the top level of the application is presented. Here, the user may select which data area they wish to work with.



Selecting a data area link takes the user into the standard flow of control as shown in the above illustration. The actions to be taken on each of these areas are described in the paragraphs below.

WELCOME & LOG IN

R3-G4

The welcome & log in screen presents basic information about the application, including title and version, and gives the user an opportunity to log onto the system.

APPLICATION TOP

R4-G1

When the user has successfully logged on to the application, the application top page is presented. This page provides links to and descriptive text for all the operational and reference data areas.

DATA AREA TOP

R5-G1

When the user enters a specific data area, a data area top page is presented that allows the user to choose to perform a predefined search, develop an ad hoc search, or add new records, as described below. The data area top page also provides links to separate reporting and operations pages.

PREDEFINED SEARCH

R5a-G1

A list of predefined searches that are relevant to the specific data area may be presented to the user if any exist. Predefined searches either have built-in query criteria or can display a screen allowing the user to enter query criteria that are specific to the predefined search.

AD HOC SEARCH

R5b-G1

Ad hoc searches can take one of two forms. The most commonly used form is the simple search, where the user selects from a list of available data fields and enters the desired value. The second form is a complex search, where the user may enter a variety of criteria in a controlled fashion.

ADDING NEW RECORDS

R5c-G1

If the user chooses to add new records, the detail display form is presented in add record mode. After the user has filled in the new data and submitted the form, a new, blank form is presented in add record mode. This process continues until the user cancels submission of the last form.

SUMMARY LISTING

R6-G1

After filling in the search criteria and initiating the search, or adding a series of new records, the user is presented with a summary listing of records that match the search criteria, or the newly entered records. This listing may consist of as few as zero records if appropriate. The listing itself consists of a subset of fields from the appropriate data area. These fields are selected to enable the user to easily discriminate between different records and identify specific records. The design document for this project describes the fields used to populate the summary listing for each data area.

DETAIL DISPLAY

R7-G1

When the user clicks on a record in the summary listing, the detail display for the appropriate record is presented. If the user has appropriate permissions, appropriate fields will be made available for modification. Otherwise, the user will be allowed to view the appropriate data. After making modifications and submitting the record, the user is

returned to the summary listing. The user may also cancel submission to return to the summary listing. If the user does not have permissions to perform modifications, the only option available is to cancel and return to the summary listing.

REPORTS

R8-G5

When the user follows the reporting link from the data area top page to the reports page, a listing of predefined reports is made available to the user, along with a link to the ad hoc query and reporting tool.

PREDEFINED REPORTS

R8a-G5

When the user executes a predefined report, the system may optionally present a criteria entry screen to allow the user to specify various report parameters. In other cases, all of the report parameters are predefined, and the system proceeds directly to report generation.

AD HOC REPORTING

R8b-G6

Ad hoc report generation, where the user specifies not only the report criteria, but also the structure and formatting of the report itself, is a complex problem that has been solved by dedicated, third party query and reporting tools. When the user clicks on the link for ad hoc reporting, the system launches the selected third party query and reporting tool.

OPERATIONS

R9-G1

When the user follows the operations link from the data area top page to the operations page, a listing of pertinent predefined operations is made available to the user. When the user executes an operation, the system may optionally present a criteria entry screen to allow the user to specify various operation parameters. In other cases, all of the operation parameters are predefined, and the system immediately begins processing.

SECURITY

R10-G4

The system will restrict access to BOTS data to specified sets of authorized users.

USER IDENTIFICATION

R10a-G4

Once a user has successfully logged on, the system retains the unique user ID for reference as necessary.

USER COMMUNITY

R10b-G8

An authorized user must be a member of one or more of the major user classes as defined in the project plan.

NETWORK COMMUNICATIONS

R10c-G1

The BOTS system will be operated on a Local Area Network (LAN) within a single physical location. As such, it is not necessary to encrypt network communications between end-users and the database application servers.

MANAGE CUSTOMER DATA

R11-G2

The system shall provide the ability to enter, update, and maintain customer data as described in the logical ERD and related entity descriptions.

MODULE SELECTION

R12-G2

The customer data module shall be accessible from the application top page.

R13-G4

Only those users with appropriate permissions will be able to access this module.

SUMMARY LISTING

R14-G2

A summary listing of customer data shall be presented to the user after execution of a search or adding one or more records.

DATA ENTRY & DETAIL DISPLAY

R15-G2

A customer data entry and detail display form shall be presented to the user when adding new records or when a record link on a summary listing has been selected.

SIMPLE SEARCHES

R16-G2

The user will be able to perform single field, simple searches on indexed customer data fields.

PREDEFINED COMPLEX SEARCHES

R17-G2

The following predefined complex searches will be made available to the user in the data area top page:

1. Customers with back orders
2. Customers that have purchased a specific product
3. Customers active within a date range
4. Customers not active within a date range

PREDEFINED REPORTS

R18-G2

The following predefined reports will be made available to the user in the data area top page:

1. Customer Reference Cards
2. Customer Mailing Labels

OPERATIONS

R19-G7

The following operation(s) will be made available to the user in the data area top page:

1. Export mail merge data

MANAGE PRODUCT DATA

R20-G2

The system shall provide the ability to enter, update, and maintain product data as described in the logical ERD and related entity descriptions.

MODULE SELECTION

R21-G2

The product data module shall be accessible from the application top page.

R22-G4

Only those users with appropriate permissions will be able to access this module.

SUMMARY LISTING

R23-G2

A summary listing of product data shall be presented to the user after execution of a search.

DATA ENTRY & DETAIL DISPLAY

R24-G2

A product data entry and detail display form shall be presented to the user when adding new records or when a record link on a summary listing has been selected.

SIMPLE SEARCHES

R25-G2

The user will be able to perform single field, simple searches on indexed product data fields.

PREDEFINED COMPLEX SEARCHES

R26-G2

The following predefined complex searches will be made available to the user in the data area top page:

1. Products on back order
2. Products ordered within a date range
3. Products not ordered within a date range

PREDEFINED REPORTS

R27-G2

The following predefined reports will be made available to the user in the data area top page:

1. Product Inventory Cards
2. Product Shelving Labels

OPERATIONS

R28-G7

The following operation(s) will be made available to the user in the data area top page:

1. Export product data

MANAGE ORDER DATA

R29-G2

The system shall provide the ability to enter, update, and maintain order data as described in the logical ERD and related entity descriptions.

MODULE SELECTION

R30-G2

The order data module shall be accessible from the application top page.

R31-G4

Only those users with appropriate permissions will be able to access this module.

SUMMARY LISTING

R32-G2

A summary listing of order data shall be presented to the user after execution of a search.

DATA ENTRY & DETAIL DISPLAY

R33-G2

An order data entry and detail display form shall be presented to the user when adding new records or when a record link on a summary listing has been selected.

SIMPLE SEARCHES

R34-G2

The user will be able to perform single field, simple searches on indexed order data fields.

PREDEFINED COMPLEX SEARCHES

R35-G2

The following predefined complex searches will be made available to the user in the data area top page:

1. Orders with back ordered items
2. Orders that purchased a specific product
3. Orders active within a date range
4. Orders not active within a date range

PREDEFINED REPORTS

R36-G2

The following predefined reports will be made available to the user in the data area top page:

1. Order Packing Lists
2. Order Shipping Labels

OPERATIONS

R37-G7

The following operation(s) will be made available to the user in the data area top page:

1. Export order data

MANAGE PRODUCT CATEGORIES DATA

R38-G3

The system shall provide the ability to enter, update, and maintain product category data as described in the logical ERD and related entity descriptions.

MODULE SELECTION

R39-G3

The product category data module shall be accessible from the application top page.

R40-G4

Only those users with appropriate permissions will be able to access this module.

SUMMARY LISTING

R41-G3

A summary listing of product category data shall be presented to the user after execution of a search.

DATA ENTRY & DETAIL DISPLAY

R42-G3

A product category data entry and detail display form shall be presented to the user when adding new records or when a record link on a summary listing has been selected.

SIMPLE SEARCHES

R43-G3

The user will be able to perform single field, simple searches on indexed product category data fields.

PREDEFINED COMPLEX SEARCHES

R44-G3

The following predefined complex searches will be made available to the user in the data area top page:

{None}

PREDEFINED REPORTS

R45-G3

The following predefined reports will be made available to the user in the data area top page:

{None}

OPERATIONS

R46-G7

The following operation(s) will be made available to the user in the data area top page:

1. Export product category data

MANAGE DEMOGRAPHIC DATA

R47-G3

The system shall provide the ability to enter, update, and maintain demographic data as described in the logical ERD and related entity descriptions.

MODULE SELECTION

R48-G3

The demographic data module shall be accessible from the application top page.

R49-G4

Only those users with appropriate permissions will be able to access this module.

SUMMARY LISTING

R50-G3

A summary listing of demographic data shall be presented to the user after execution of a search.

DATA ENTRY & DETAIL DISPLAY

R51-G3

A demographic data entry and detail display form shall be presented to the user when adding new records or when a record link on a summary listing has been selected.

SIMPLE SEARCHES

R52-G3

The user will be able to perform single field, simple searches on indexed demographic data fields.

PREDEFINED COMPLEX SEARCHES

R53-G3

The following predefined complex searches will be made available to the user in the data area top page:

{None}

PREDEFINED REPORTS

R54-G3

The following predefined reports will be made available to the user in the data area top page:

{None}

OPERATIONS

R55-G7

The following operation(s) will be made available to the user in the data area top page:

1. Export demographic data

TRACEABILITY LISTING

The following listing is automatically maintained by the word processor for this document. It is of use only to systems analysts when verifying requirements traceability across documents.

**R1-G1
R2-G1
R3-G4
R4-G1
R5-G1
R5A-G1
R5B-G1
R5C-G1
R6-G1
R7-G1
R8-G5
R8A-G5
R8B-G6
R9-G1
R10-G4
R10A-G4
R10B-G8
R10C-G1
R11-G2
R12-G2
R13-G4
R14-G2
R15-G2
R16-G2
R17-G2
R18-G2
R19-G7
R20-G2
R21-G2
R22-G4
R23-G2**

R24-G2
R25-G2
R26-G2
R27-G2
R28-G7
R29-G2
R30-G2
R31-G4
R32-G2
R33-G2
R34-G2
R35-G2
R36-G2
R37-G7
R38-G3
R39-G3
R40-G4
R41-G3
R42-G3
R43-G3
R44-G3
R45-G3
R46-G7
R47-G3
R48-G3
R49-G4
R50-G3
R51-G3
R52-G3
R53-G3
R54-G3
R55-G7