Requirements Document for ABC Video System

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Contents

1 Introduction **2**

1.1 Purpose . . . 2

1.2 Scope . . . 2

1.3 Definitions,Acronyms, Abbreviations . . . 2

1.4 Overview . . . 3

2 General Description of the ABC Video System **4**

2.1 Product Perspective . . . 4

2.2 Product Functions . . . 4

2.3 User Characteristics . . . 5

2.4 Constraints and Assumptions . . . 5

3 Requirements **7**

3.1 Functional Requirements . . . 7

3.1.1 Requirements for renting a tape . . . 8

3.1.2 Requirements for returning a tape . . . 10

3.1.3 Requirements for entering a new customer . . . 11

3.1.4 Requirements for entering a new video . . . 12

3.1.5 Requirements for functions for managers . . . 12

3.2 External Interface Requirements . . . 13

3.2.1 User Interfaces . . . 13

3.2.2 Hardware Interfaces . . . 13

3.3 Performance Requirements . . . 13

3.4 Other Requirements . . . 13

Chapter 1

Introduction

1.1 Purpose

This document presents the requirements specification for an automated video tracking and reporting system for ABC Video. These requirements represent the understanding of the system based on interviews with and documents provided by ABC Video management. The purpose of this document, then, is three-fold:

1. To demonstrate to the management of ABC Video that the requirements engineer has correctly understood ABC Videos system requirements.
2. To elicit feedback from the ABC Video management regarding the understanding of the system, and in particular, to serve as a basis of agreement on the precise problem to be solved.
3. And finally, to serve as a guide during system design.

1.2 Scope

This document focuses primarily on the requirements for an automated video tracking and reporting system. As such, requirements for other aspects of ABC Video's operations are for the most part beyond the scope of this document. However, this document also specifies requirements for each entity external to the system which must interface with the automated video tracking and reporting system.

1.3 Definitions,Acronyms, Abbreviations

- Customer
  A person who has an account and will be renting video cassettes at ABC Video
- Account
  A customer's record of membership that permits transactions, such as rentals
- Rentables
  Video tapes that can be rented. In future this may also be games, CDs, etc.

- Form
  Receipt for each transaction
- PC
  This term refers to the computer that will process all transactions.
- ABC card
  This is a card each customer gets after he is entered in the system, i.e. has opened an account. On this card there is a bar code with an account number that can be read with the bar code reader.

1.4 Overview

The remainder of this document is divided into two sections. In section two an informal overview of the system is provided based on information provided by ABC Video management. Section three presents the functional requirements and performance requirements.

Chapter 2

General Description of the ABC Video System

Customers select at least one video for rental. The maximal number of tapes that a customer can have outstanding on rental is 20. The customer's account number is entered to retrieve customer data and create an order. Each customer gets an id card from ABC for identification purposes. This id card has a bar code that can be read with the bar code reader. Bar code IDs for each tape are entered and video information from inventory is displayed. The video inventory file is updated. When all tape IDs are entered, the system computes the total bill. Money is collected and the amount is entered into the system. Change is computed and displayed. The rental transaction is created, printed and stored. The customer signs the rental form, takes the tape(s) and leaves.
To return a tape, the video bar code ID is entered into the system. The rental transaction is displayed and the tape is marked with the date of return. If past–due amounts are owed they can be paid at this time; or the clerk can select an option which updates the rental with the return date and calculates past-due fees. Any outstanding video rentals are displayed with the amount due on each tape and a total amount due. Any past-due amount must be paid before new tapes can be rented.

2.1 Product Perspective

The system will operate on the PC AT currently owned by ABC Video. The system will interface with bar code scanners to simplify rental and return processing, and with printers to produce receipts for the customer and ABC Video. All information regarding customers, clerks, videos, fees, and rental history information will be stored on the computers.

2.2 Product Functions

The system will automate the day to day operations of ABC Video. The system will allow for quick and convenient rental, return, and payment processing, automatically tracking the status of every item in ABC Video's inventory. Future enhancements will include:

- Customer queries regarding the availability of videos will be easy to answer.

- Warnings to customers when they re-rent a video will be accomplished automatically.
- Statistics such as the total cash flow and total tapes rented will be automatically tabulated each business day.

In addition to facilitating the day to day operations of ABC Video, the system will manage a variety of information useful to management. The system will store information on each ABC Video customer, and will contain records of all past rental transactions.

2.3 User Characteristics

The system will be used by ABC Video management, clerks, and indirectly by customers. From the point of view of the system, clerks and managers are identical. Some system operations are only accessible to managers (such as printing daily reports) and are protected by password.

Clerks do not need to have any expert knowledge of computers, but will need to become familiar with the software procedures for rentals and returns. Managers should be familiar with all system capabilities, including setting fee schedules, doing reports and maintaining customer and video information. Customers do not need to have any knowledge of the system, but will be expected to bring their ABC card.

2.4 Constraints and Assumptions

Startup Assumptions

- ABC Video will upgrade the computer hardware as is necessary for the system, including the purchase of scanning equipment, cash drawers, a tape drive, and upgrading the hard disks if necessary.
- The initial entry of the video inventory is beyond the scope of this specification.

Other Constraints and Assumptions

- All customers and rental items must be registered with the system.
- For every rental item there must be an applicable fee schedule.
- Customers must have a valid credit card or be able to make a deposit in cash or by check in order to register.
- Customers must have a phone number and address.
- Customers are required to settle their entire bill upon payment. Partial payments are not allowed.
- Rented items are associated with only a single rental period. For example, at one time one does not have the option of renting the same video for either one or for two days.

- Returns must be completed prior to doing the end of day reports in order to be included in that day's reports.
- The computer hardware maintains the correct date.
- Payment will be accepted in the form of cash, check, and credit card.
- If processing fails, an error condition should be reported.

Chapter 3

Requirements

3.1 Functional Requirements

This is a list of the functional requirements the system should satisfy. The functional requirements are presented in the following way:
Description: A description of the specific requirement
Input: A description of the inputs that the software system gets
Processing: A description of what the software system should do with the input.
Output: A description of the response /new state of the software system.
The input, processing and output sections are only specified when needed.

General Requirements

Functional Requirement 1

- *Description*
  In the initial state of the video system the main menu is displayed. From the main menu the clerk can choose one of the following options:

  1. Rent a tape
  2. Return tapes
  3. Insert new customer
  4. Insert new video
  5. Change customer data.
  6. Change video data
  7. Delete video
  8. Delete customer
  9. exit

- *Input*
  Employee chooses one option.

- *Processing*
  Process the selected item

- *Output*
  Display the menus for the selected item.

Functional Requirement 2

- *Description*
  The system keeps a video inventory record for each tape given attributes and current status of it.

Functional Requirement 3

- *Description*
  The system keeps a rental transaction record for each customer giving out information and currently rented tapes for each customer.

3.1.1 Requirements for renting a tape

Functional Requirement 4

- *Description*
  The customer has his ABC card with him. The account number of a customer is read with the bar code reader from the clerk to retrieve rental transaction record.

- *Input*
  The account number is entered via bar code from account card.

- *Processing*
  Searching rental transaction record.

- *Output*
  Display rental transaction record.

Functional Requirement 5

- *Description*
  The customer doesn't have his ABC card with him. The account number of a customer is entered with the keyboard from the clerk to retrieve rental transaction record.

- *Input*
  The account number is entered with the keyboard

- *Processing*
  Searching rental transaction record.

- *Output*
  Display rental transaction record.

Functional Requirement 6

- *Description*
  Bar code IDs for each tape to be rented are entered

- *Input*
  Bar code IDs for each tape are entered with the bar code reader

- *Processing*
  Retrieving video inventory record about the tape.

- *Output*
  Display video name and rental price.

Functional Requirement 7

- *Description*
  The maximal number of tapes that can be rented at one transaction is 20.

- *Input*
  Bar code IDs of tape is entered with the bar code reader.

- *Processing*
  If this is tape 21 taken, rental is rejected.

- *Output*
  Error message is displayed.

Functional Requirement 8

- *Description*
  When all tapes are entered the system computes the total.

- *Input*
  Enter–key is pressed on keyboard after the last tape was entered.

- *Processing*
  Computation of the total due. The total is the sum of the past–due fees, other fees and current video rental fees.

- *Output*
  Total due.

Functional Requirement 9

- *Description*
  The clerk collects the money from the customer and enters the amount into the system.

- *Input*
  Amount of money that is given to clerk entered via keyboard.

- *Processing*
  Compute change.

- *Output*
  Display amount of change.

Functional Requirement 10

- *Description*
  When the clerk presses an "order-complete" option key (defined by the system) this rental is complete and the video inventory file is updated.

- *Input*
  Clerk presses the "order-complete" option key

- *Processing*
  Update the video inventory file. Close rental transaction.

- *Output*
  Video inventory file is updated. Rental transaction file is updated.

Functional Requirement 11

- *Description*
  After the rental is closed the transaction is stored and printed.

- *Input*
  Close the current rental.

- *Processing*
  Store rental and print form that the customer has to sign. Return to initial state. Forms will be kept on file in the store for one month after the tapes are returned.

- *Output*
  Printed form. Initial menu is displayed.

3.1.2 Requirements for returning a tape

Functional Requirement 12

- *Description*
  The video bar code is entered into the system

- *Input*
  Bar code of the video.

- *Processing*
  Retrieve rental transaction record.

- *Output*
  Display rental transaction record.

Functional Requirement 13

- *Description*
  When the rental transaction record is retrieved the record of the video is marked with the date of return

- *Input*
  Bar code of video rental

- *Processing*
  Rental transaction and video inventory record are retrieved. Mark date of return in the record.

- *Output*
  Updated video inventory and rental transaction record.

Functional Requirement 14

- *Description*
  If past-due amounts are owed, they can be paid at this time; or the clerk can select the "order-complete" key which updates the rental with the return date and calculates past-due fees.

- *Input*
  Payment or calculation of past-due fees

- *Processing*
  Updating rental transaction record. Go to initial state.

- *Output*
  Updated rental transaction file.

3.1.3 Requirements for entering a new customer

Functional Requirement 15

- *Description*
  A new customer wants to rent tapes. The clerk enters all the necessary information, prints the bar code for the ABC card and glues it on a blank ABC card. Then this card is given to the customer.

- *Input*
  Clerk enters the following information: Name, address and credit card information of the customer.

- *Processing*
  Create a new rental transaction record for customer. The system assigns an account number to the customer and prints the bar code. Go to initial state.

- *Output*
  Printing of the bar code. Customer can rent tapes.

3.1.4 Requirements for entering a new video

Functional Requirement 16

- *Description*
  Before a new tape can be rented all necessary information must be entered. Then a bar code is printed and the clerk has to glue it on the video.

- *Input*
  A video tape is characterized by the following attributes: video name, rental price and tape ID.

- *Processing*
  Create a video inventory record for tape.

- *Output*
  Video inventory record produced. Tape can be rented. Print a bar code for the tape.

Functional Requirement 17

- *Description*
  The clerk can change the data either of a customer or a video.

- *Input*
  Clerk enters new data of either a video or a customer.

- *Processing*
  Updating the data in the video inventory file.

- *Output*
  Display if the data was changed.

3.1.5 Requirements for functions for managers

Functional Requirement 18

- *Description*
  Only managers can delete customers or video.

- *Input*
  Manager enters account number of video or customer

- *Processing*
  Deleting video or customer

- *Output*
  Display if the data was deleted

Functional Requirement 19

- *Description*
  The manager can print daily reports or some statistics
- *Input*
  Manager selects what kind of information he wants to have. He can choose from the following list:
  - Daily report
  - lists of customers registered during some time period
  - lists of customers marked bad credit
  - lists of customers with overdue items
  - lists of tapes by status
  - lists of tapes not rented for some number of days
  - number of rentals (by copy, title, type) over some time period
  - number of days rented (by month, year, copy, and title)
  - customer rental histories
- *Processing*
  Collecting all data for the requested information and printing of it.
- *Output*
  Printed data

3.2 External Interface Requirements

3.2.1 User Interfaces

3.2.2 Hardware Interfaces

3.3 Performance Requirements

Performance Requirements 1

The completed software system will be user-friendly.

Performance Requirements 2

The system will have a quick response time. Typical response times for scanning in a video to be rented will be under 15 seconds. In almost every case the response time will be under five minutes, with the possible exception of retrieving archived data from a 8mm backup tape or disk.

3.4 Other Requirements

Requirement 1

The system should run on all common computer–systems.