SOFTWARE REQUIREMENT SPECIFICATION

Installment Product Management System

Software Requirement Engineering

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1. Introduction

1.1 Purpose

The purpose of this document is to present a detailed description of the software "IPMS" (Installment Product Management System). It will explain the purpose and features of the software, the interfaces of the software, what the software will do and the constraints under which it must operate. This document is intended for users of the software and also potential developers.

1.2 Document Conventions

This Document was created based on the IEEE template for System Requirement Specification Documents.

1.3 Intended Audience and Reading Suggestions

- Typical Users, such as company employees, who want to use IPMS for managing customer data
- Advanced/Professional Users, such as engineers or researchers, who want to use IPMS for more demanding analysis.
- Programmers who are interested in working on the project by further developing it or fix existing bugs.

1.4 Definitions, Acronyms, and Abbreviations.

1.4.1 Definitions

• **Functional requirements:** A description of how the system should behave, or of a system property or attribute.

• **Nonfunctional requirements:** Non-functional requirements define the overall qualities or attributes of the resulting system.

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• **Use case model:** A use case is a set of scenarios tied together by a common user goal.

• **Actor:** An actor is a role that a user plays with respect to the system

• **Pre-condition:** The activities which must take place, or any conditions that must be true, before the use case can be started.

• **Post-condition:** Conditions which describe the state of the system at the conclusion of the use case execution.

- **Restriction:** Any limitation that requirement must fulfill.

- **Availability:** A system's availability is the amount of time that it is operational and available for use. This is specified because some systems are designed with expected downtime for activities like database upgrades and backups. The normal flow and the condition which must be true in order for this extension to be executed.

- **Exception:** Any anticipated error conditions that could occur during execution of the use case, and how the system is supposed to respond to those conditions.

- **Rationale:** Motivation behind the requirement is known as rationale.[3]

- **Trigger:** Event that initiates the use case. This could be an external business event or system event that causes the use case to begin, or it could be the first step in the normal flow

- **Include:** The include relationship occurs when you have a chunk of behavior that is similar across more than one use case and you don't want to keep copying the description of that behavior.

- **Extend:** Use extend when you are describing a variation on normal behavior and you wish to use the more controlled form, declaring your extension points in your base use case.

- **Generalization:** You use use-case generalization when you have one use case that is similar to another use case but does a bit more.

- **Usability:** Concerned with specifying the user interface and end-user interactions with the system.

- **Reliability:** Constraints on the run-time behavior of the system

- **Performance:** Constrain the speed of operation of a system

- **Integrity:** Integrity requirements define the security attributes of the system, restricting access to features or data to certain users and protecting the privacy of data entered into the software.

- **Data breach:** An incident that involves the unauthorized or illegal viewing, access or retrieval of data by an individual, application or service.

- **Credibility:** Quality of being believable or trustworthy.[1]

- **Security:** Un-authorized access to the system and its data is not allowed.

- **Robustness:** A robust system is able to handle error conditions gracefully, without failure. This includes a tolerance of invalid data, software defects, and unexpected operating conditions.[2]

- **Flexibility:** If the organization intends to increase or extend the functionality of the software after it is deployed, that should be planned from the beginning; it influences choices made during the design, development, testing, and deployment of the system**.** [2]

- **Interface:** A boundary across which two independent systems meet and act on or communicate with each other.

1.4.2 Abbreviations

- **OS:** Operating System
- **SRS:** Software Requirements Specification
- **IPMS:** Installment Product Management System
- **SDD**: software design description

1.5 Product Scope

IPMS is a software that people can use to manage all customer records very efficiently, user can use this software to submit installments, user can see all records, user can deliver product with managing all data of customer, user can authenticate customer for being defaulted by other systems or by other companies, user can manage all records of the showroom employees as well, user is considered to feel good security experience which is a big concern area of this release.

1.6 References

[1] R. Buyya, D. Abramson, and J. Giddy, *Nimrod/G: An Architecture for a Resource Management* , HPC ASIA'2000, China, IEEE CS Press, USA, 2000.

[2] R. Buyya, D. Abramson, J. Giddy, *An Economy Driven Resource Management Architecture for Global Computation*, The 2000 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 2000), Las Vegas, USA, June 26-29, 2000.

[3] R. Buyya, D. Abramson, and J. Giddy, *software requirement methodology*, 10th IEEE International Heterogeneous Computing Workshop (HCW 2001), with IPDPS 2001, SF, California, USA, April 2001.

2. Overall Description

This system helps user to handle customer data on big scale using database. This system allow user to automatically submit customer's desired product information to customer profile. This system helps user to submit customer installment on one click all the calculations and time of submission will be handled by system automatically. The system will allow user to send a messages to customer

to remind them to submit their installments on time by using customer's mobile number information from his profile. This system allow user to see all the monthly and day sales of a particular employee. This system allows user to check profit of the branch either of the day or the month. This system allow user to interact with administrator to edit customer profile in case of any error or wrong submission.

2.1 Product Perspective

This document contains the problem statement that the current system is facing security issues. It further contains a list of the stakeholders and users of the proposes solution. It also illustrates the needs and wants of the stakeholders that were identified in the brainstorming exercise as part of the requirements workshop. It further lists and briefly describes the major features and a brief description of each of the proposed system.

The following SRS contains the detail product perspective from different stakeholders. It provides the detail product functions of Electronics store with user characteristics permitted constraints, assumptions and dependencies and requirements subsets.

2.2 User Characteristics and Classification

2.3.1 DBA

The DBA is expected to have a field appropriate college degree and experience of at least 2 years as a DBA and an additional 5 years in the IT field. She/he has the privilege to update information in the database and technical expertise in database management.

2.3.2 Data Entry Level Personnel

They must have at least a high school diploma or equivalent certification. They do not have privileges to directly access or modify the database without the permission of the DBA.

2.3 Design Constraints

2.3.1 Standard Development Tools

- The system shall be built using a standard development tool that conforms to either IBM's CUA standards or Microsoft's GUI standards.

2.3.2 Web Based Product

- There are no memory requirements all the data must be stored in database.
- The computers must be equipped with web browsers such as Internet explorer.
- The product must be stored in such a way that allows the user easy access to it.

- Response time for loading the product should take no longer than five minutes.
- A general knowledge of basic computer skills is required to use the product

3. Specific Functionality

3.1 Functional Requirements

Introduction

This subsection contains the requirements for the IPMS. These requirements are organized by the features discussed in the vision document. Features from vision documents are then refined into use case diagrams and to sequence diagram to best capture the functional requirements of the system.

- The system shall enter customer name, id, father's name product description and installment plane in the processing module.

- The system shall generate processing number The system shall print the processing receipt.
- The system should check guarantors of customer before generating the processing number.
- The system shall display all the products that can be selected in delivery time.
- The system shall allow user to select the product to configure.
- The system shall display all the available components of the product.
- The system shall enable user to add one or more component to the configuration.
- The system shall notify the user about any conflict in the current configuration.
- The system shall allow user to update the configuration to resolve conflict in the current configuration.
- The system shall allow user to confirm the completion of current configuration.

3.1.1 Provide comprehensive product details.

- The system shall display detailed information of the selected products.
- The system shall provide browsing options to see product details.

3.1.2 Detailed product Categorizations

 The system shall display detailed product categorization to the user.

3.1.3 Provide Search facility

- The system shall enable user to enter the search text on the screen.
- The system shall enable user to select multiple options on the screen to search.
- The system shall display all the matching products based on the search
- The system shall display only 7 matching result on the current screen.
- The system shall enable user to navigate between the search results.
- The system shall notify the user when no matching product is found on the search.

3.1.4 Maintain customer profile

- The system shall allow user to create profile and set his credential.
- The system shall authenticate user credentials to view the profile.
- The system shall allow user to update the profile information.

3.1.5 Provide personalized profile

- The system shall display both the active and completed order history in the customer profile.
- The system shall allow user to select the order from the order history.
- The system shall display the detailed information about the selected order.
- The system shall display the most frequently searched items by the user in the profile.

3.1.6 Provide Customer Support.

- The system shall provide online help.
- The system shall allow user to select the support type he wants.
- The system shall allow user to enter the customer and product information for the support.
- The system shall display the customer support contact numbers on the screen.

3.1.7 Cheque confirmation.

- The system shall maintain customer cheque record as a required part of customer profile.
- The system shall send reminder for the submission of installment to the user through mobile number.

3.1.8 Detailed status for customer.

- The system shall display detailed current status of account to validate customer.
- The system shall optionally allow user to print the overall status of customer data.

3.1.9 Allow multiple payment methods.

- The system shall display available payment methods for payment.
- The system shall allow user to select the payment method.

3.1.10 Allow online change or cancellation of order.

- The system shall display the orders that are eligible to change.
- The system shall allow user to select the order to be changed.
- The system shall allow user to cancel the order
- The system shall allow user to change shipping, payment method.
- The system shall notify the user about any changes made to the order.

3.1.11 Allow Online Product reviews and ratings

- The system shall display the reviews and ratings of each product, when it is selected.
- The system shall enable the user to enter their reviews and ratings.

3.1.12 Allow user to enter customer physique information

- The system shall allow user to enter customer figure prints with the customer profile.
- The system shall allow user to picture the customer photo to add with his profile.

3.1.13 Allow user to generate receipts.

- The system shall allow user to generate processing receipt.
- The system shall allow user to generate delivery receipt.
- The system shall allow user to generate installment receipt..

3.2 Usability

3.2.1 Graphical User Interface

- The system shall provide a uniform look and feel between all the web pages.
- The system shall provide a digital image for each product in the product catalog.
- The system shall provide use of icons and toolbars.

3.2.2 Accessibility

- The system shall provide handicap access.
- The system shall provide multi language support.

3.3 Reliability & Availability

3.3.1 Back-end Internal Computers

- The system shall provide storage of all databases on redundant computers with automatic switchover.
- The system shall provide for replication of databases to off-site storage locations.

3.3.2 Internet Service Provider

- The system shall provide a contractual agreement with an internet service provider for internet access with 99.99% availability.

3.4 Performance

- The system shall be based on web and has to be run from a web server.
- The system shall take less time in generation of delivery number.
- The system shall take less time in submitting the installment.
- The system shall take less time in processing the customer initial details.
- The system shall take less time in searching the customer physiques information.
- The product shall take initial load time depending on internet connection strength which also depends on the media from which the product is run.
- The performance shall depend upon hardware components of the client/customer.

3.5 Security

3.5.1 Data security

- The system shall use secure sockets in all transactions that include any confidential customer information.
- The system shall automatically log out all user after a period of inactivity.
- The system shall confirm all the installment details with log report.
- The system shall provide unique login information to each user.
- The system shall not leave any login information of user.
- The system shall not allow other computer to access information of other branch.
- The system shall not allow user to do amendments of customer information of previous day.
- The system shall generate a log report showing changes in customer profile.
- The user's age profile shall never display a user's password. It shall always be echoed with special characters representing typed characters.
- The system's back-end servers shall never display a customer's profile to other branch. The

user's password may be reset but never shown.

- The system's back-end servers shall only be accessible to authenticated administrators.
- The system's back-end databases shall be encrypted.

3.6 Supportability

3.6.1 Configuration Management Tool

- The source code developed for this system shall be maintained in configuration management tool.

3.7 External Interfaces

There are many types of interfaces as such supported by the IPMS (Installment Product Management System) namely; User Interface, Software Interface and Hardware Interface.

3.7.1 User Interfaces

The user interface for the software shall be compatible to any browser such as Internet Explorer, Mozilla or Netscape Navigator by which user can access to the system. The user interface shall be implemented using any tool or software package like Java etc.

3.7.2 Hardware Interfaces

Since the application must run over the internet, all the hardware shall require to connect internet will be hardware interface for the system. As for e.g. Modem, WAN – LAN, Ethernet Cross-Cable. Figure print reader and camera shall require to enter customer's physiques information to the system.

3.7.3 Software Interfaces

1. The IPMS system shall communicate with the Configurator to identify all the available components to configure the product.
2. The IPMS shall communicate with the content manager to get the product specifications, offerings and promotions.
3. The IPMS system shall communicate to administrator system for handling any wrong calculated installment plans.
4. The IPMS system shall communicate with database administrator system in order to get access by administrator if issue occurs.

3.7.4 Communications Interfaces

The IPMS system shall use the HTTP protocol for communication over the internet.

3.7.5 Memory constraints

- System shall be built in a way that will require 256M Ram to run it.

3.8 On-line User Documentation and Help System Requirements

- It shall provide specific guidelines to a user for using the IPMS (Installment Product Management System)
- To implement user help, link and search fields shall be provided.

3.9 Legal, Copyright, and Other Notices

IPMS should display the disclaimers, copyright, word mark, trademark and product warranties of the Haris and Inam Electronics.

3.10 Applicable Standards

It shall be as per the industry standard.

4. Other Requirements

4.1 Logical Database Requirements

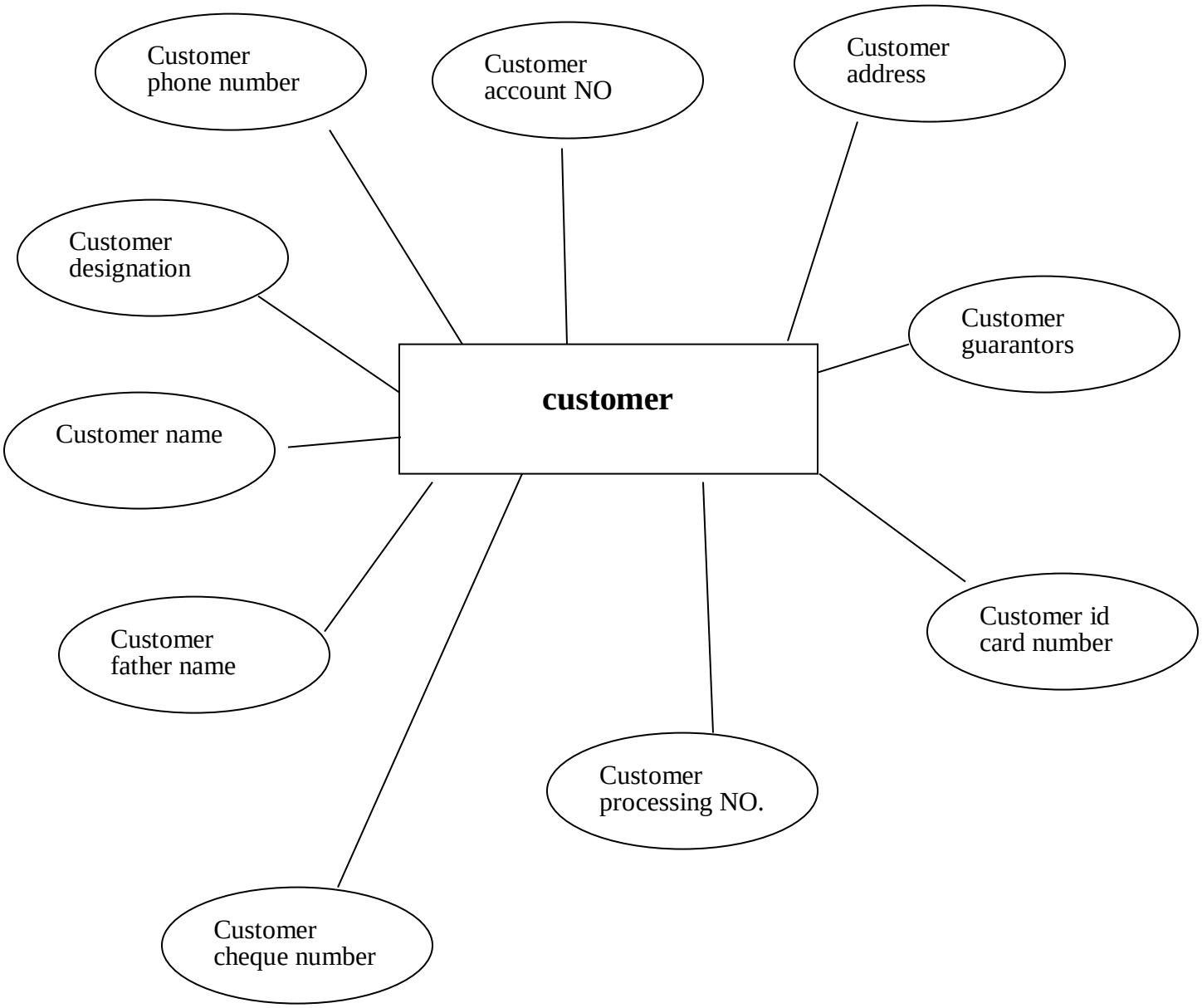
Following information is needed to be save in database;

- Valid Mobile number of customer.
- Valid installment plan.
- Valid system ID generated by system on delivery.
- Name of customer.
- 2 guarantors must be submitted.
- Cheque NO must be submitted.
- Data operator id No. must be submitted.

4.2 Site Adaptation Requirements

The system requires Internet connection to fetch and display results. All system information is maintained in a database, which is located on a web-server.

5. Appendix: Analysis Models



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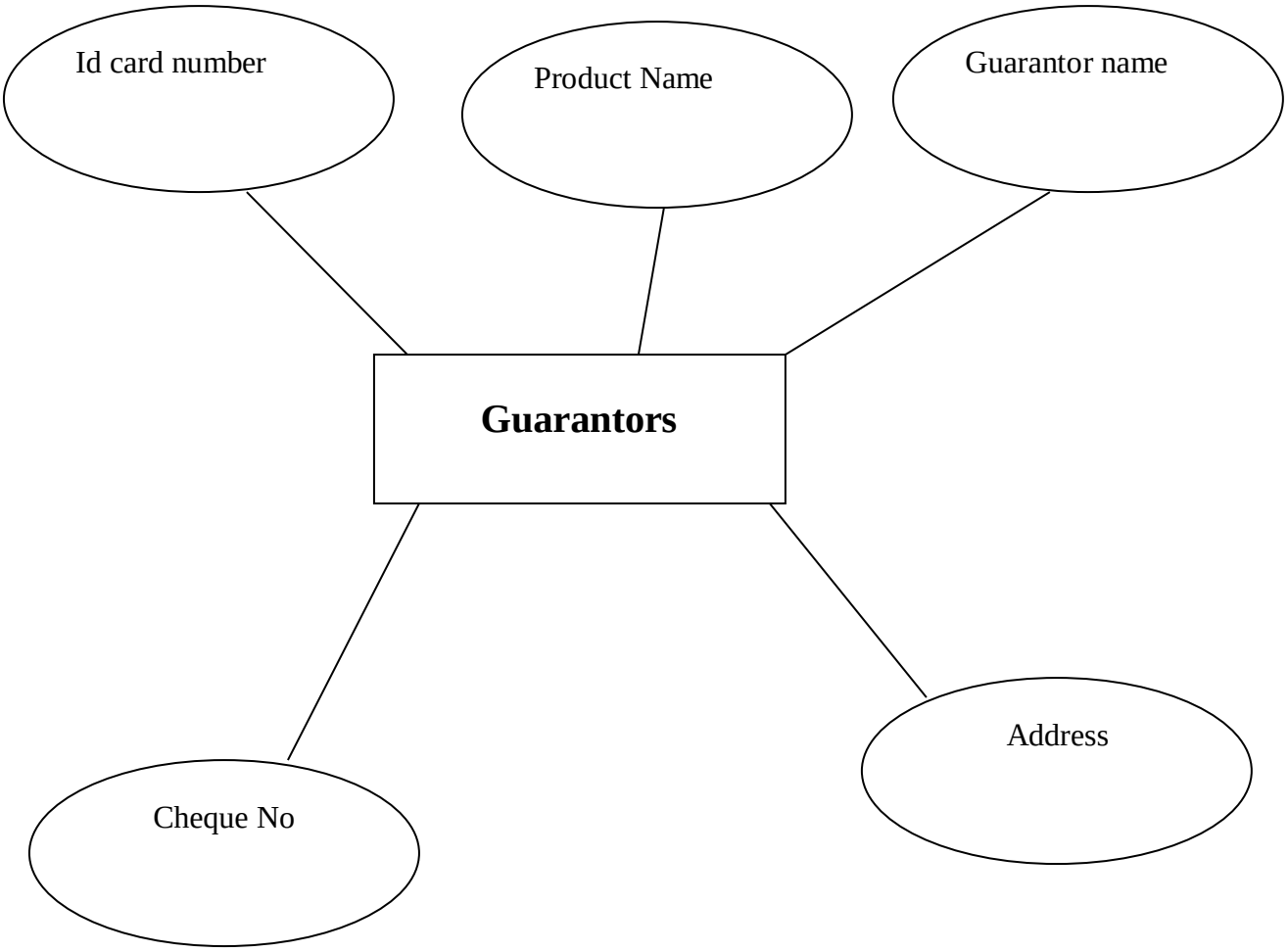
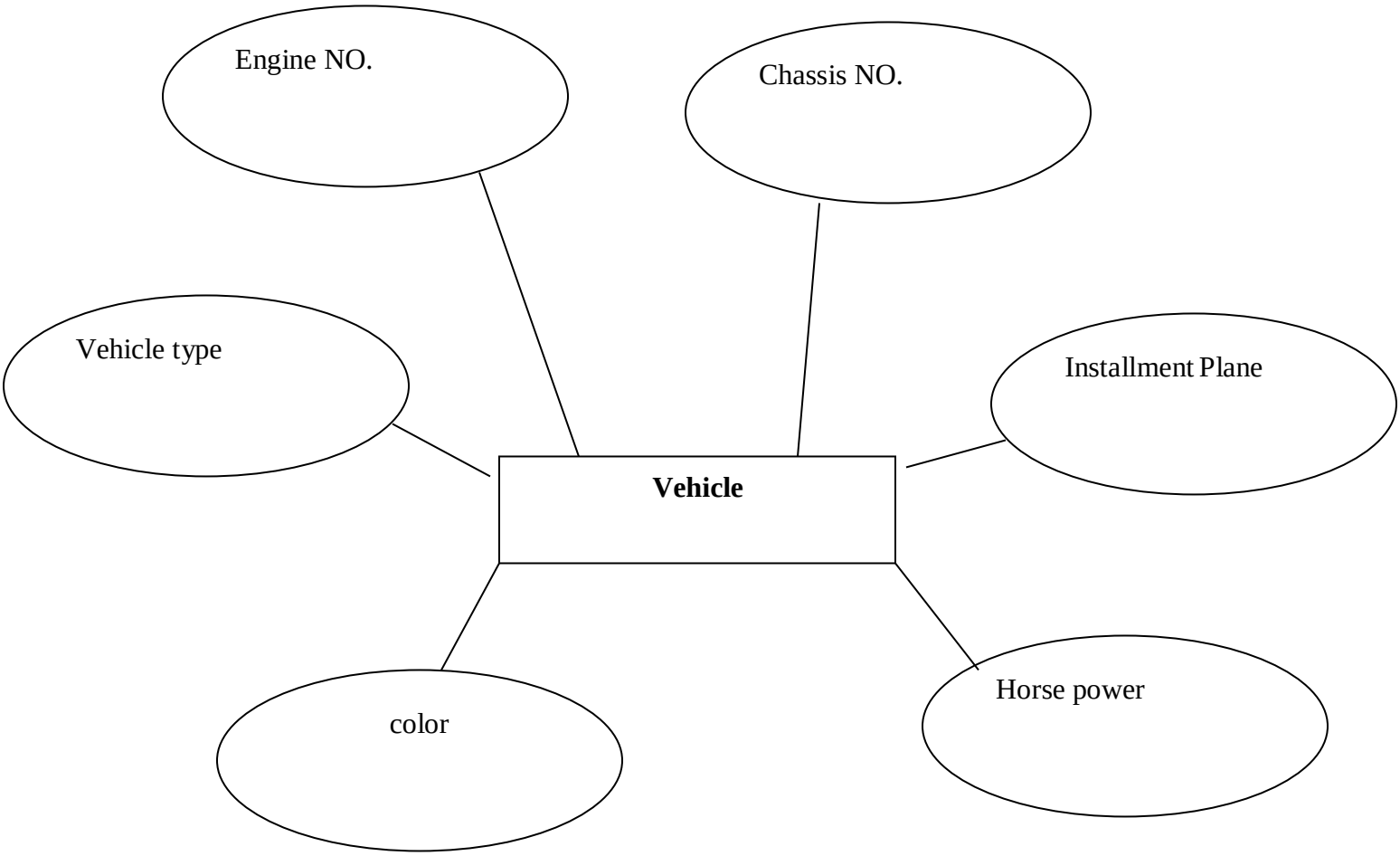


Entity attributes for ERD



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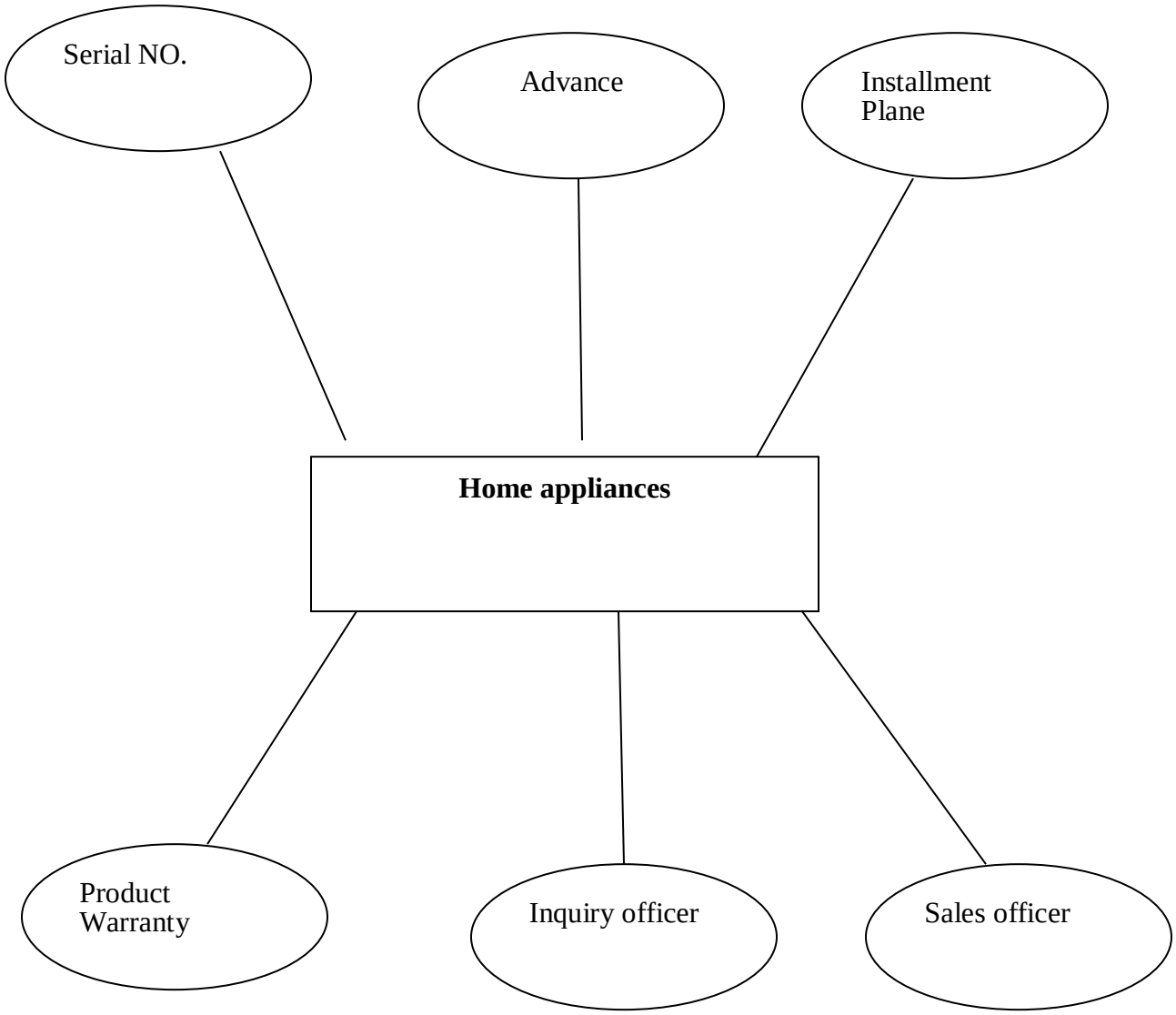
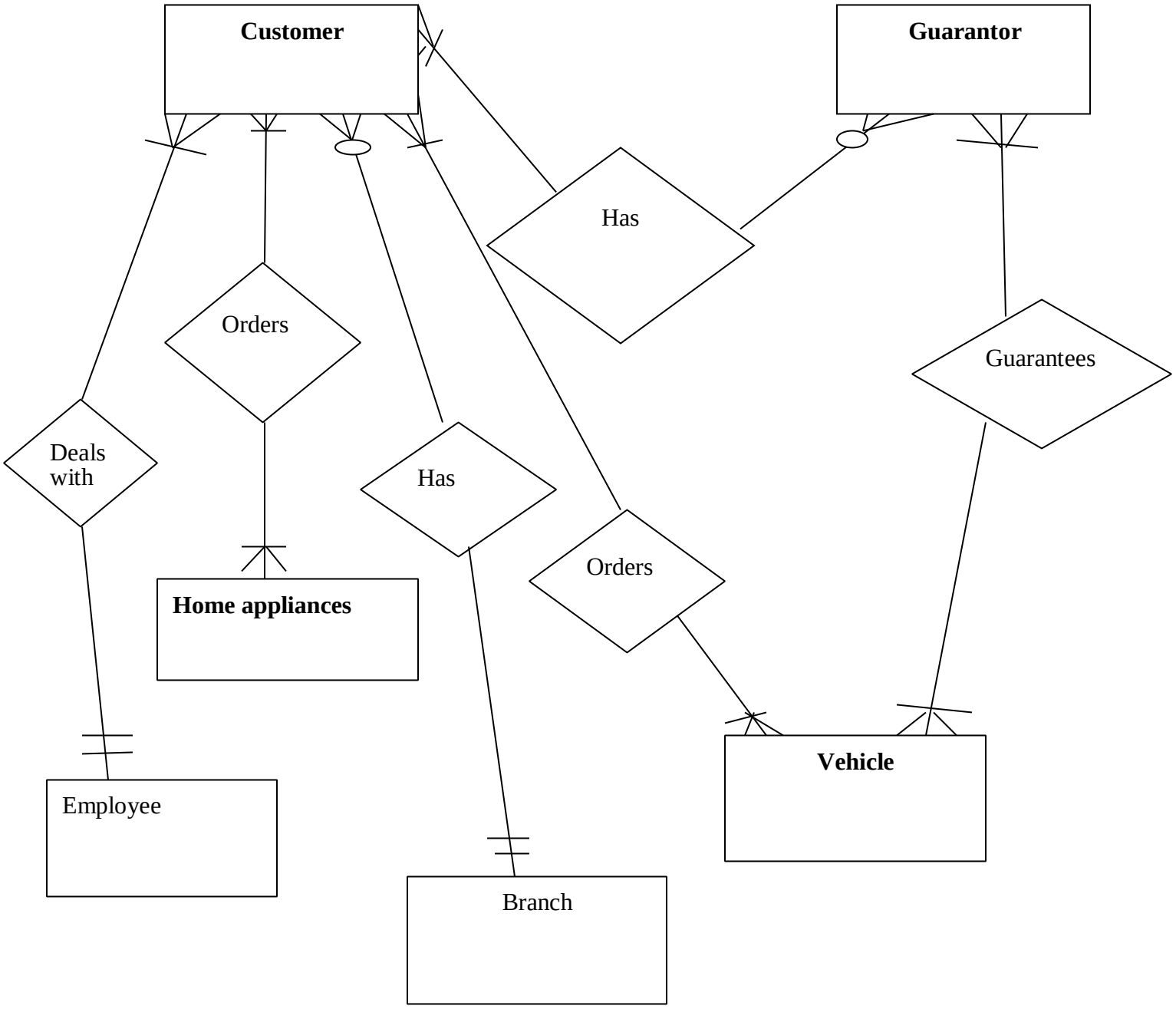

Serial NO.
Advance
Installment Plane
Home appliances
Product Warranty
Inquiry officer
Sales officer

ER-Diagram


Customer
Guarantor
Has
Orders
Guarantees
Deals with
Has
Orders
Home appliances
Vehicle
Employee
Branch