VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JNANA SANGAMA", BELAGAVI-590018, KARNATAKA

A Mini Project Report
On

"Credit Card Application Portal"

Submitted in the partial fulfillment of the requirement for the award of degree of

BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE AND ENGINEERING

Submitted By

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

SAI VIDYA INSTITUTE OF TECHNOLOGY

(Affiliated to Visvesvaraya Technological University, Belagavi | Recognized by Govt. of Karnataka | Approved by AICTE, New Delhi)

RAJANUKUNTE, BENGALURU – 560 064

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CERTIFICATE

Certified that the Mini Project work entitled *"**Credit Card Application Portal**"* carried out by **Mr. Amit A Bhalerao and Mr. Deepak Jaiswal,** bonafide students of **SAI VIDYA INSTITUTE OF TECHNOLOGY**, Bengaluru, in partial fulfillment for the award of Bachelor of Engineering in Computer Science & Engineering of **VISVESVARAYA TECHNOLOGICAL UNIVERSITY**, Belagavi during the year **2020-21.** It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The mini project report has been approved as it satisfies the academic requirements in respect of mini project work prescribed for the said Degree.

Prof. Deeksha Hegde B	**Prof. Archana R A**	**Dr. H S Ramesh Babu**
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Name of External Examiners	**Signature With Date**
1. _____	_____
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ABSTRACT

"Credit Card Application Portal **(CCAP)**" provides a platform for Users to avail a credit card by filling in the relevant details. Further, it enables them to manage card services in the application portal. The **CCAP** is aimed at taking a step forward towards digitalizing the entire process of applying for a credit card as well as managing the same.

To summarize, the whole project can be understood through the points mentioned below.

- **CCAP** initially checks whether a user is pre-registered at the application portal. If so, then he or she is directed to the services menu. If not, then it allows users to sign up as a first-time user at the application portal.

- Upon completion of the above-mentioned sign-up process, a confirmation email is sent to the user's registered email id which he or she had provided during the sign-up process. The confirmation email also contains user's login credentials as well as his or her form number.

- Once the user receives the email, he or she is redirected to the initial login page of the application portal. Here, he or she can use the credentials that had been sent earlier to his or her email id in order to login into the services menu. Once the credentials are verified, the user is directed to the services menu.

- In the services menu, the user can avail four major services i.e., he or she can update the pin or view his/her application details or view the type of card he/she would be issued with or view the set of FAQs which he or she can refer to.

CONTENTS

Introduction To DBMS

Database is a collection of data and Management System is a set of programs to store and retrieve those data. Based on this one can define DBMS as a collection of inter-related data and set of programs to store & access those data in an easy and effective manner.

1.1 What is the need of DBMS?

Database systems are basically developed for large amount of data. When dealing with huge amount of data, there are two things that require optimization: Storage of data and retrieval of data.

Storage: According to the principles of database systems, the data is stored in such a way that it acquires lot less space as the redundant data (duplicate data) has been removed before storage. Let's take a layman example to understand this. In a banking system, suppose a customer is having two accounts, one is saving account and another is salary account. Let's say bank stores saving account data at one place (these places are called tables we will learn them later) and salary account data at another place, in that case if the customer information such as customer name, address etc. Are stored at both places then this is just a wastage of storage (redundancy/ duplication of data), to organize the data in a better way the information should be stored at one place and both the accounts should be linked to that information somehow. The same thing we achieve in DBMS.

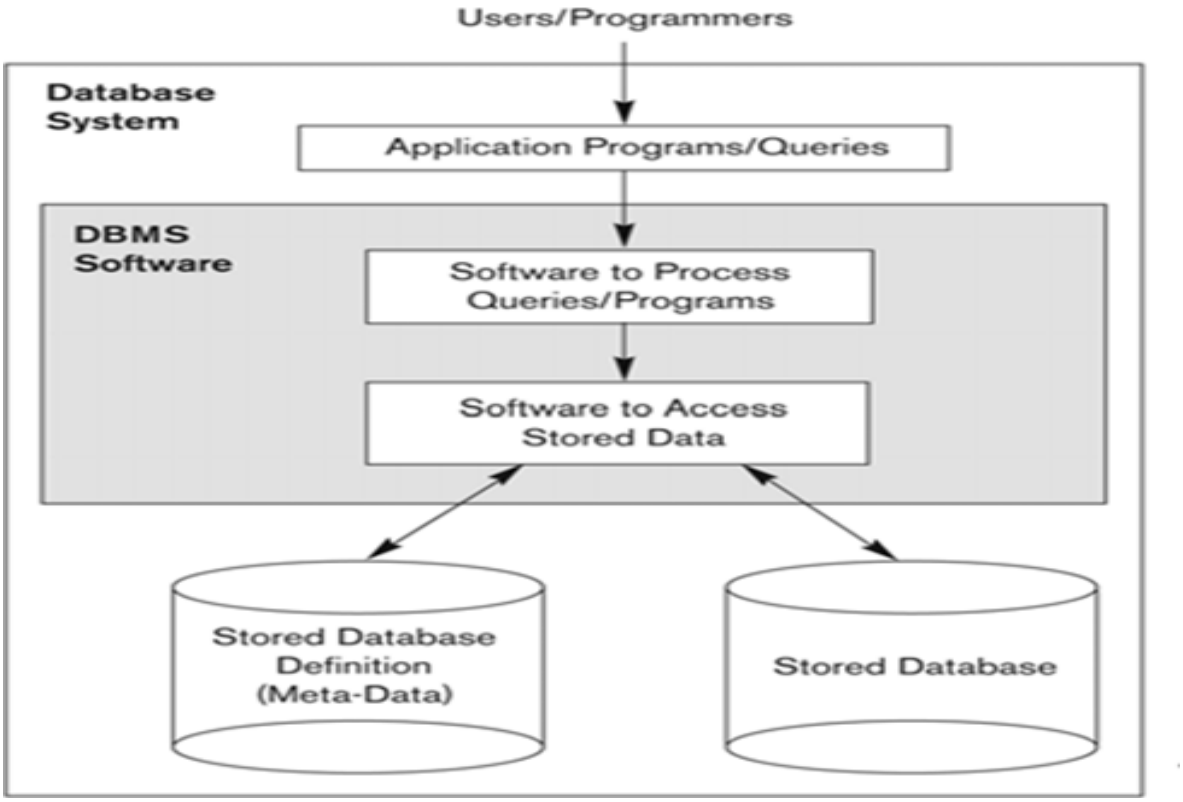
Fast Retrieval of data: Along with storing the data in an optimized and systematic manner, it is also important that we retrieve the data quickly when needed. Database systems ensure that the data is retrieved as quickly as possible.

The choice of a database product is often influenced by factors such as:

- The computing platform (i.e., hardware, operating system)
- The volume of data to be managed
- The number of transactions required per second
- Existing applications or interfaces that an organization may have
- Support for heterogeneous and/or distributed computing
- Cost
- Vendor support

1.2 Design and Modeling

The first task of a database designer is to produce a conceptual data-model that reflects the structure of the information to be held in the database. A common approach to this is to develop an entity-relationship model, often with the aid of drawing tools. Another popular approach is the Unified Modeling Language. A successful data model will accurately reflect the possible state of the external world being modeled: for example, if people can have more than one phone number, it will allow this information to be captured.



1.3 Objective

The main objective of this project is to determine how an interactive inventory management system helps in the smooth functioning of a warehouse compared to traditional inventory management, by digitizing all the records and transacting everything on a computer rather than on paper. This project is a two-tier architecture application.

1.4 Problem Statement

Existing systems for Warehouse Inventory Management are very inefficient and mostly involve a lot of manual work to be done by the manager of the system. With this project, we want to automate as many tasks as possible using the available technology and the internet.

1.5 Scope of Report

The essential framework of this report would be to elaborate the design of E.R-diagram, Schema Diagram and to display how the modules of the program work in order to achieve the automation

System Requirements and Software Specifications

The program works on Desktop PC and is executed using a Java Swing interface which interacts with a My SQL database running on localhost.

2.1 Functional Requirements

A description of the facility or feature required. Functional requirements deal with what the system should do or provide for users. They include description of the required functions, outlines of associated reports or online queries, and details of data to be held in the system.

The interface requirements are highlighted below

- The system shall provide an option to enter user details.
- The system should give option for login.
- The system shall provide option to update pin.
- The system shall provide option to avail email services.

2.2 Non-Functional Requirements:

Non-functional requirements define the overall qualities or attributes of the resulting system.

2.2.1 Usability

Usability is the ease with which a user can learn to operate the Credit Card Application Portal.

2.2.2 Security

Security requirements are included in a system to ensure:

- All user details are well secured
- Email service has been utilized to secure credentials.

2.2.3 Reliability

Reliability is the ability of a system to perform its required functions under stated conditions for a specific period of time. Constraints on the run-time behavior of the system can be considered under two separate headings:

- Availability: is the system available for service when requested by end-users.
- Failure rate: how often does the system fail to deliver the service as expected by end- users.

2.2.4. Efficiency

The comparison of what is actually produced or performed with what can be achieved with the same consumption of Clouds (money, time, labor, etc.). It is an important Factor in Determination of Productivity.

2.3 Software Requirements

Programming language	:	Java, MYSQL
Operating system	:	Any OS (Recommended**:** Windows 10, Windows Vista, Windows XP)
Application required	:	Standalone desktop application & Wamp Coding
language	:	Core Java

2.4 Hardware Requirements

CPU	:	Pentium IV 2.4 GHz or above Memory
(Primary)	:	512 MB, 1 GB or above
Hard Disk	:	40 GB, 80GB, 160GB or above
Monitor	:	15 VGA color

ER Diagram and Schema Diagram

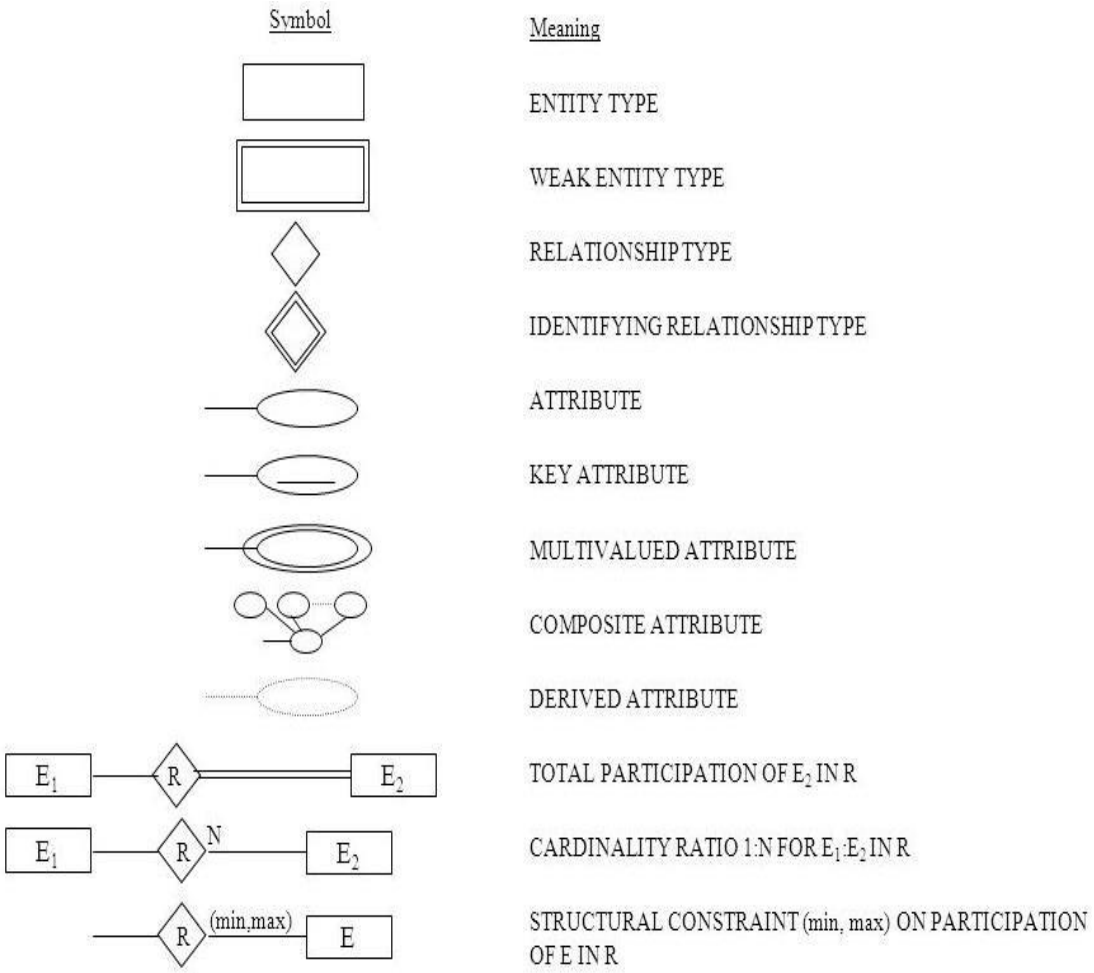
This chapter of the report describes the structure of the project, followed by Entity Relationship Diagram, Schema Diagram and the table structures.

3.1 ER Diagram with relationships and cardinality ratio

An entity relationship model, also called an entity-relationship (ER) diagram, is a graphical representation of entities and their relationships to each other, typically used in computing in regard to the organization of data within databases or information systems. An entity is a piece of data-an object or concept about which data is stored.

The cardinality or fundamental principle of one data aspect with respect to another is a critical feature. The relationship of one to the other must be precise and exact between each other in order to explain how each aspect links together. In simple words Cardinality is a way to define the relationship between two entities.

The following are the notations of the ER diagram:



The ER diagram below shows the relationship between the many tables that exist in the database for the functioning of Credit Card Application Portal.

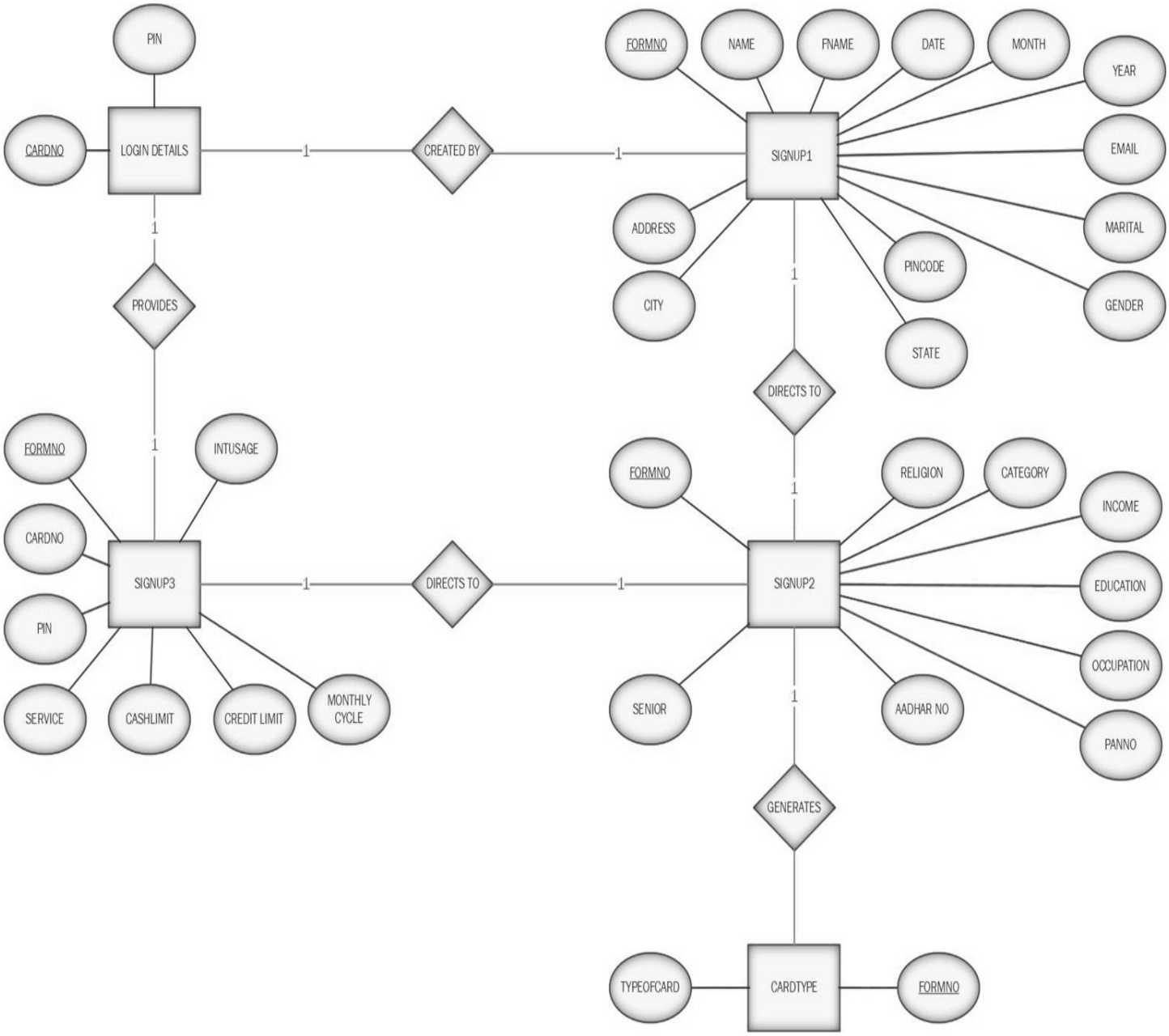


Fig 3.2: ER Diagram Credit Card Application Portal

3.2 Schema Diagram

In any data model it is important to distinguish between the description of the database and the database itself. The description of a database is called the database schema, which is specified during database design and is not expected to change frequently. A displayed schema is called a schema diagram. A schema diagram displays only some aspects of a schema, such as the names of record types and data items, and some types of constraints.

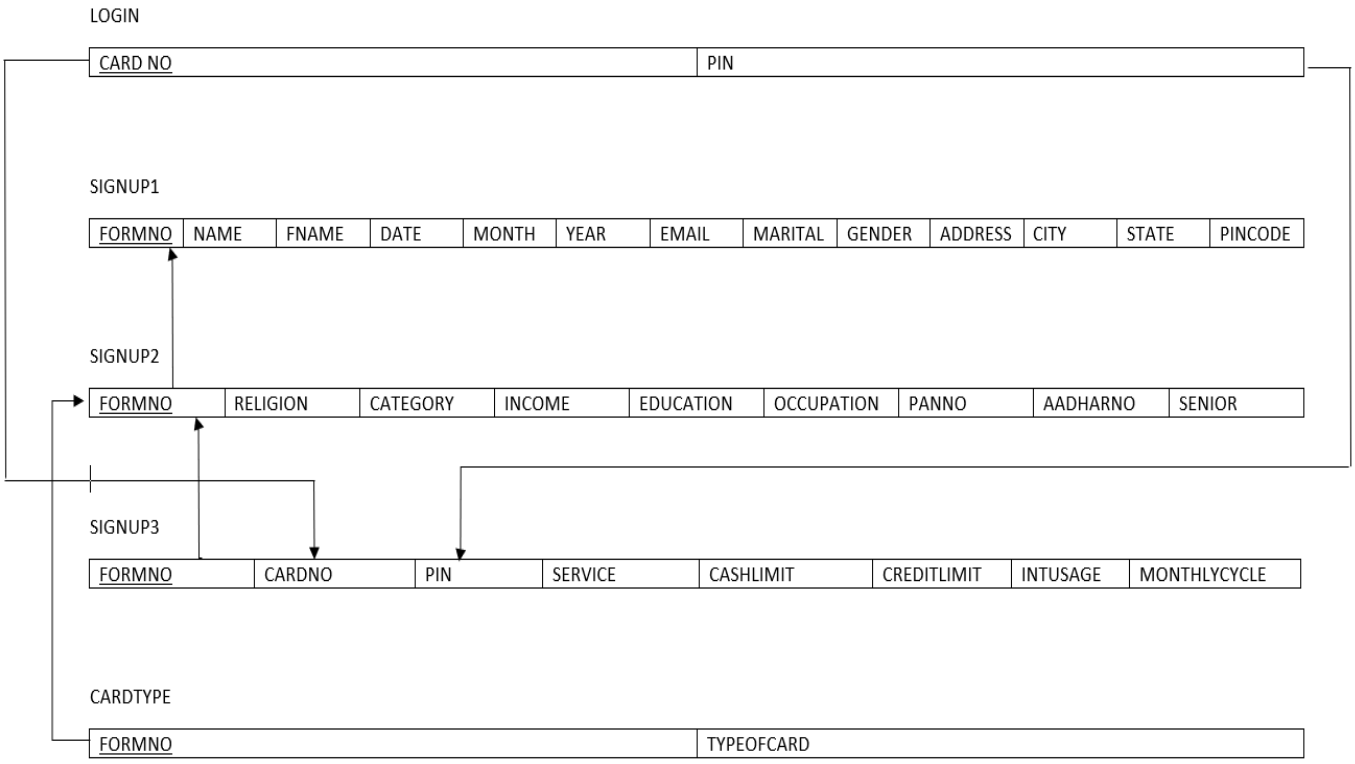


Fig 3.2: Schema Diagram of Credit Card Application Portal

Implementations

This chapter of the report describes the Functions, packages and modules used in the project:

4.1 Libraries and Frameworks

Java
Java is a general-purpose computer-programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible

Java Swing
Swing is a GUI widget toolkit for Java. It is part of Oracle's Java Foundation Classes (JFC) – an API for providing a graphical user interface (GUI) for Java programs.

JavaMail
JavaMail is a Java API used to send and receive email via SMTP, POP3 and IMAP. JavaMail is built into the Java EE platform, but also provides an optional package for use in Java SE.

4.2 Functional Modules

The functional modules included in the project are listed below:

Insert Module:

This module provides the functionality of collecting the required data from the designed interface and transmitting it to the appropriate table present in the database designed for this project. If the provided data does not satisfy the given constraints, it must refrain from storing it into the database.

Update Module:

This module again has the functionality of collecting the data from the designed interface, but it updates the already existing tuple that matches the provided primary key of the tuple to be updated, by replacing the existing attribute values with the newly collected data. Again, if the CREDIT CARD APPLICATION PORTAL Functions newly provided data does not satisfy the given constraints, it must refrain from updating the corresponding tuple.

Modules in Credit Card Application Portal

"Credit Card Application Portal **(CCAP)**" provides a platform for Users to avail a credit card by filling in the relevant details. Further, it enables them to manage card services in the application portal. The **CCAP** is aimed at taking a step forward towards digitalizing the entire process of applying for a credit card as well as managing the same.

- Login
- Signup1
- Signup2
- Signup3
- CardType

LOGIN:

Credit Card Application Portal initially checks whether a user is pre-registered at the application portal.

- If so, then he or she is directed to the services menu. In the services menu, the user can avail four major services i.e., he or she can update the pin or view his/her application details or view the type of card he/she would be issued with or view the set of FAQs which he or she can refer to.
- If not, then it allows users to sign up as a first-time user at the application portal.

SIGNUP1:

This module basically deals with inserting values into the database. Relevant details such as User's name, their father name, date of birth, e-mail id, gender type, marital status and his/her complete residential address are requested to be filled by the user in order to process user's application for availing a credit card. Upon filling the above-mentioned details, a unique form number is generated which is associated with the user who has filled up the relevant details

SIGNUP2:

This module also deals with inserting values into the database. User's application is processed based upon the form number generated in the previous module. Details such as Aadhar number, PAN number, educational details, salary, category, etc. are to be filled by the user.

SIGNUP3:

Being directed to this module from SIGNUP2, the user is further supposed to fill in details which would be stored into the database. Here, s/he is required to fill in the desired cash withdrawal limit, credit limit, monthly cycle and the services which they wish to avail. Upon completion of the above-mentioned sign-up process, a confirmation email is sent to the user's registered email id which he or she had provided in the SIGNUP1 module. The confirmation email also contains user's login credentials as well as his or her form number.

Once the user receives the email upon successful signup as a first-time user, he or she can use the credentials that had been sent earlier to his or her email id in order to login into the services menu.

CARDTYPE

This module tells the user the type of card s/he would be granted with. The type of card to be granted to the user is decided upon his/her income. The following table gives the insight of the same.

Salary Range	Type of Card Issued
<1,50,000	Silver Card
<2,50,000	Gold Card
<5,00,000	Diamond Card
<10,00,000	Platinum Card
Above 10,00,000	Premium Card

Conclusion and Future Enhancements

The **CCAP** i.e., CREDIT CARD APPLICATION PORTAL provides enhanced facility to avail a Credit card digitally in order to reduce manual paperwork so as to automate all possible tasks.

For implementing this system, Java, Java Swing, My SQL were used.

The system comprises of following features:

- Registration of User
- Updating User Credit Card pin
- Printing User Details in PDF format.
- Allowing Users to avail several types of services.
- Email Service Facility.

Scope of Enhancement!

There are also few features which can be integrated with the system to make it more flexible and further efficient than it is right now.

Below list shows the future points to be considered:

- Utilizing email platform to a next level in order to enhance communication.
- Detecting User’s Credit score.
- Enabling hardware acceleration to increase performance capabilities of the CCAP.
- Making use of SMS services to further enhance the security.

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APPENDIX

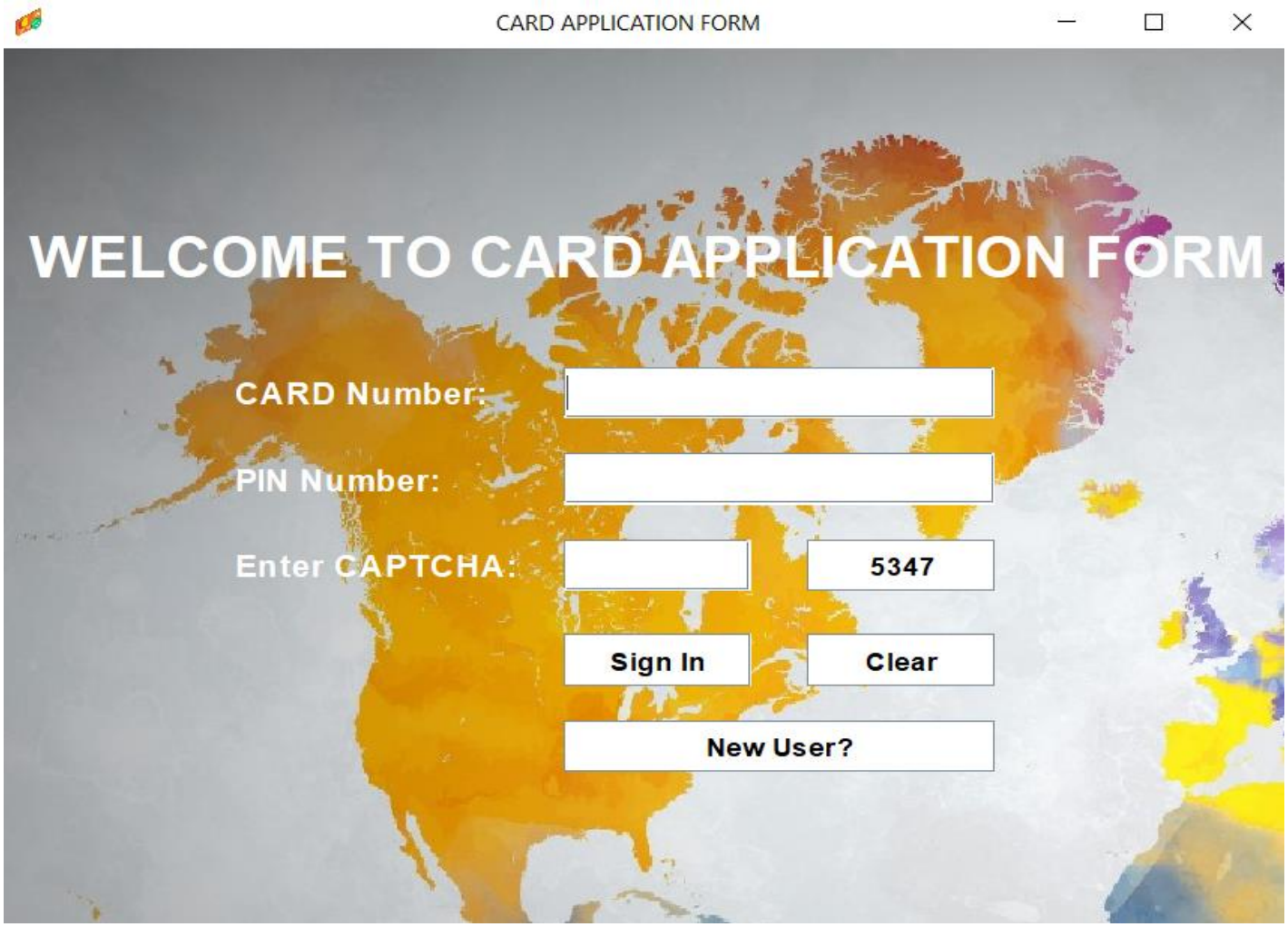

Fig: Login Page.

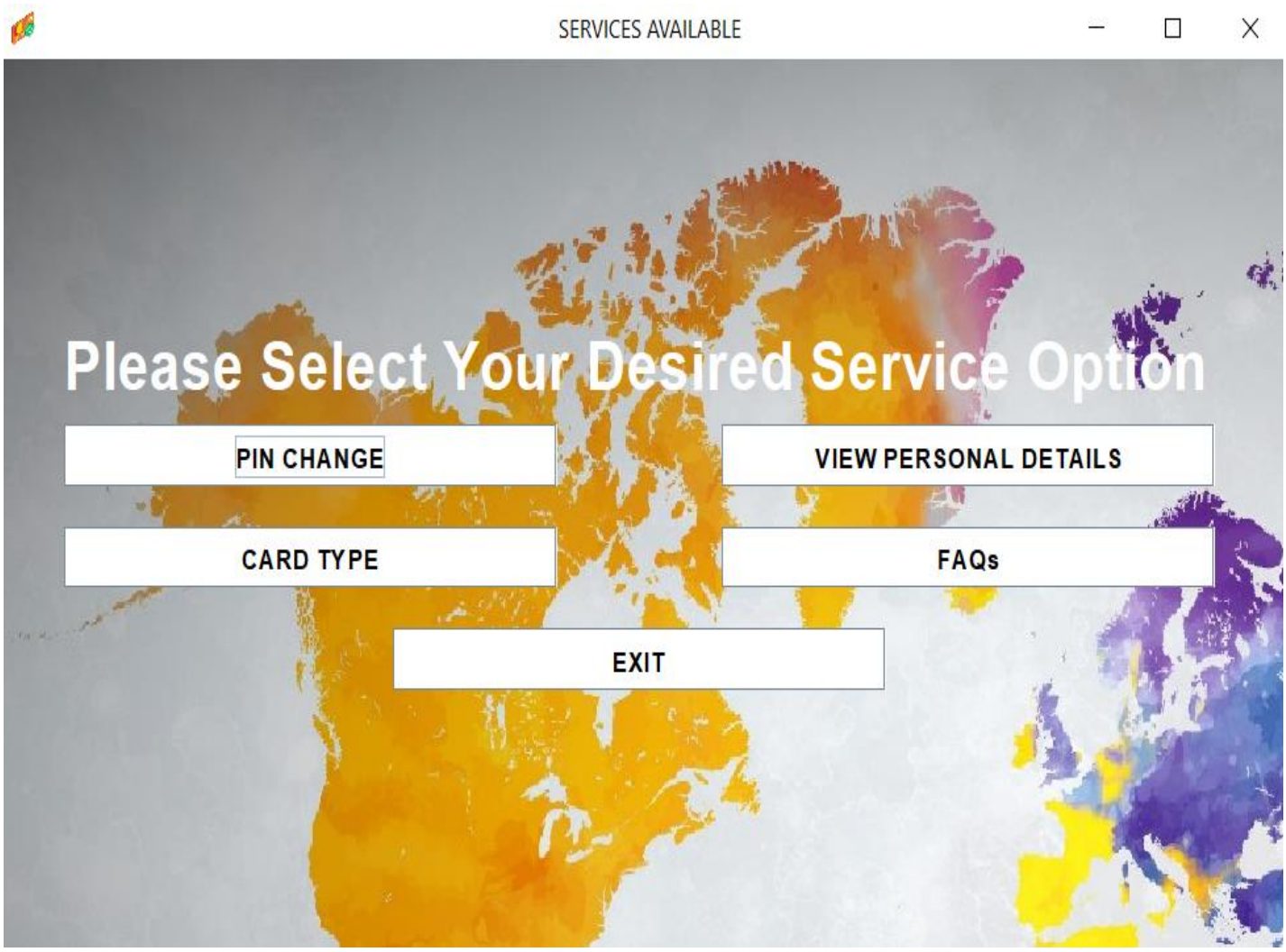

Fig: On successful login, Services Menu is displayed.

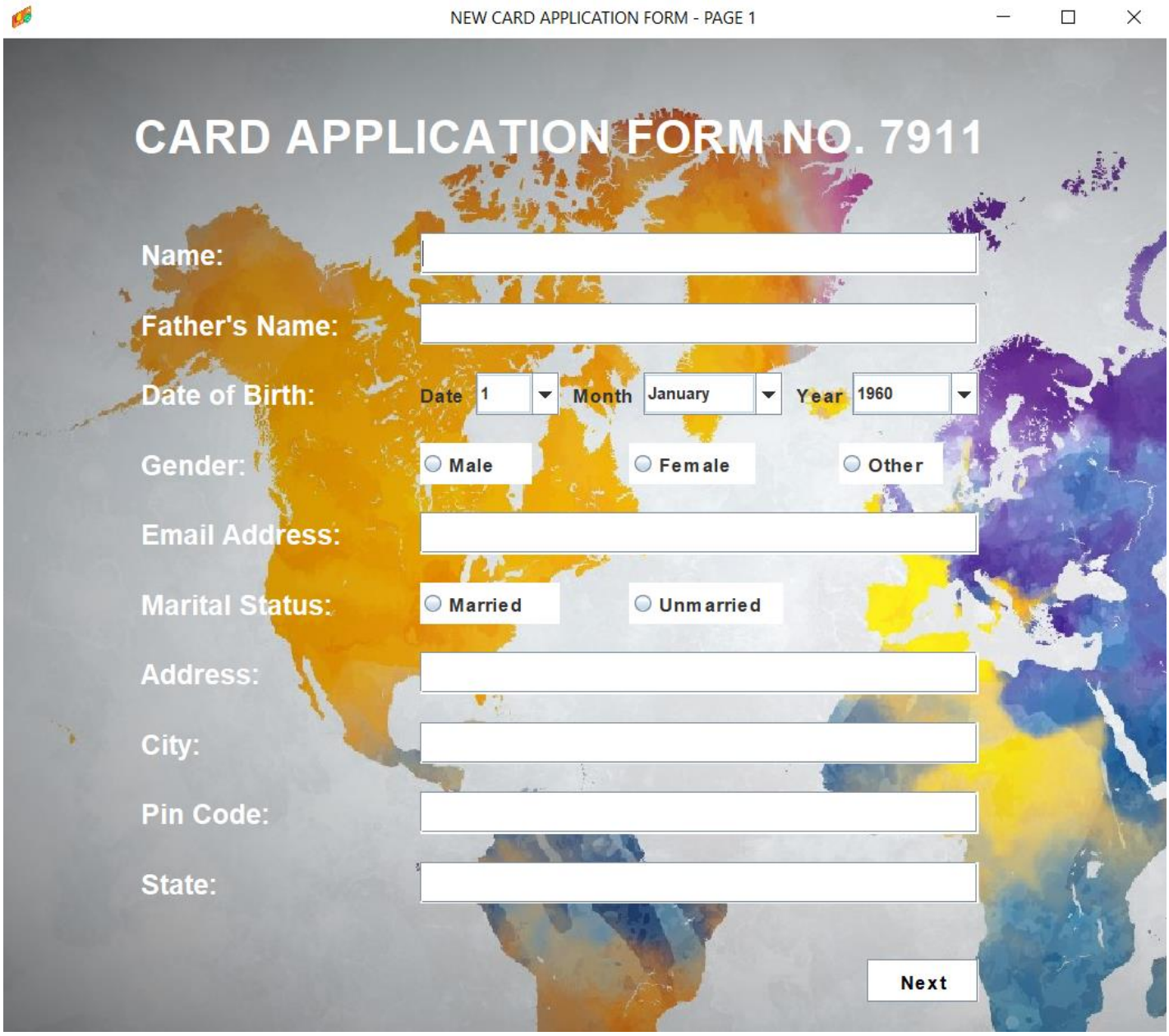

Fig: Signup1 Menu being displayed for first time user.

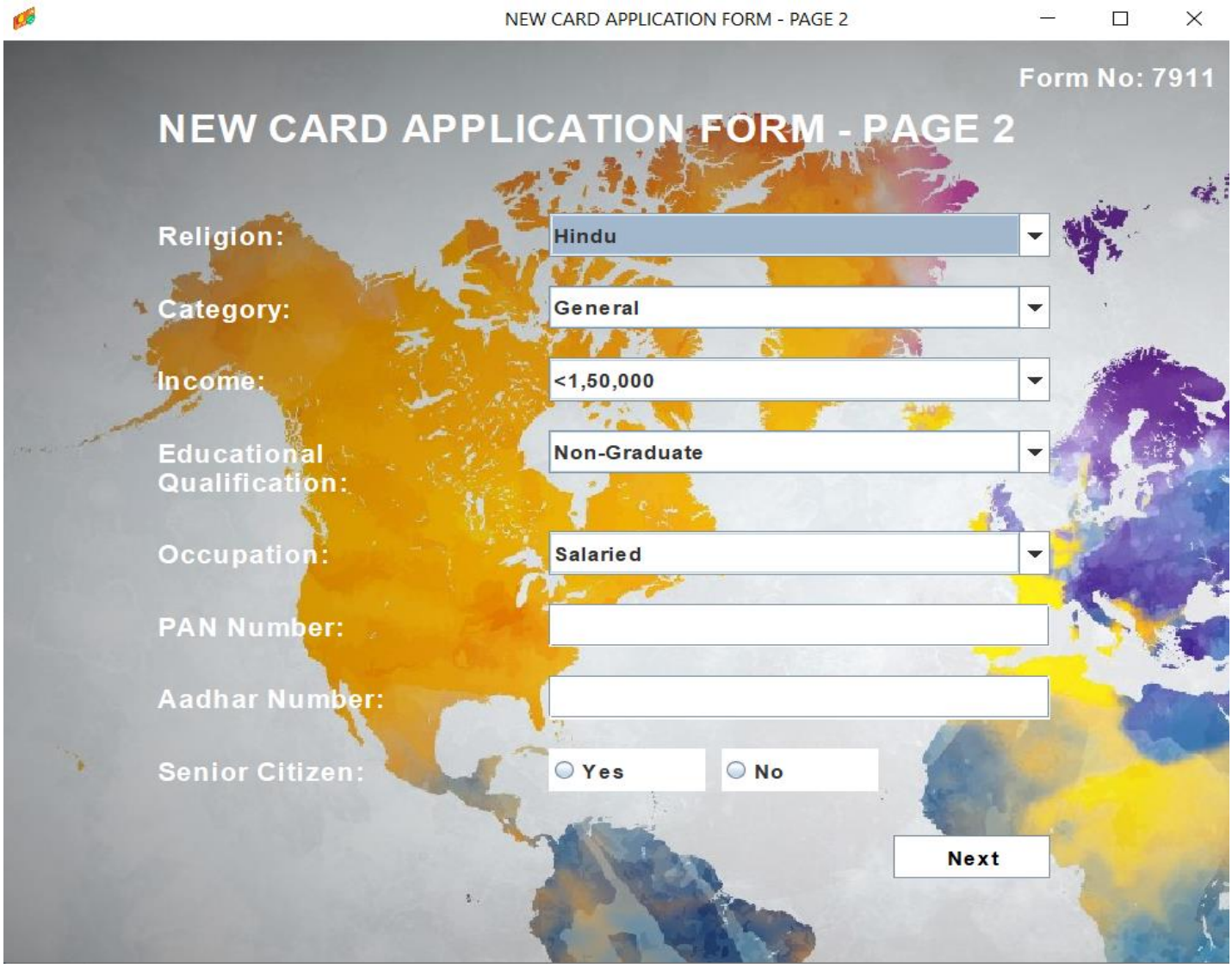

Fig: Signup2 Menu being displayed after filling up the details present in Signup1.

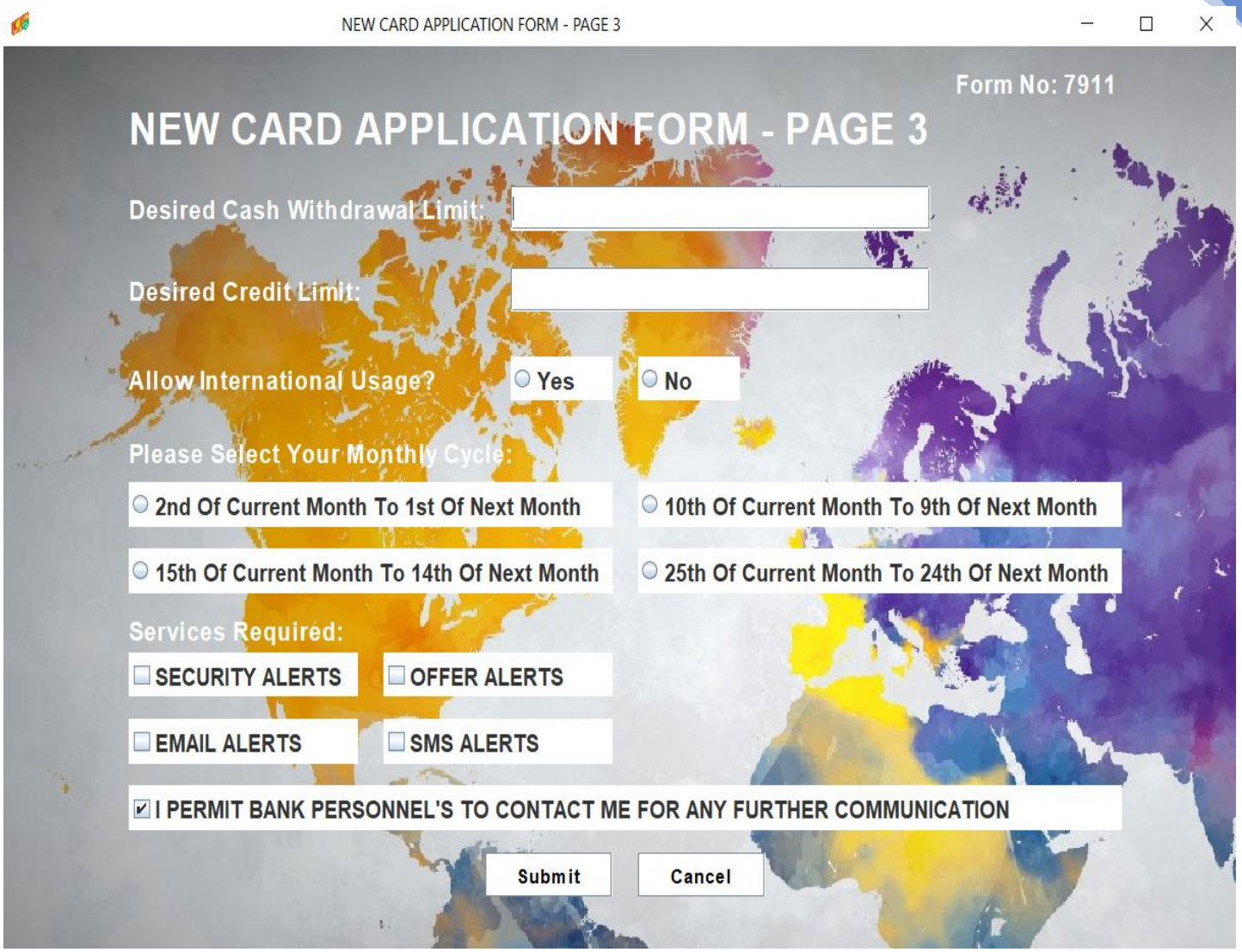

Fig: Signup3 Menu being displayed after filling up the details present in Signup2.