OOPS ASSIGNMENT

INVENTORY MANAGEMENT PROJECT

"A good programmer is someone who always looks both ways before crossing a one-way street."

Done by:

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The programming language used for this project is **JAVA**

What is JAVA?

Java is a general-purpose, class-based, object-oriented programming language designed for having lesser implementation dependencies. It is a computing platform for application development. Java is fast, secure, and reliable, therefore. It is widely used for developing Java applications in laptops, data centers, game consoles, scientific supercomputers, cell phones, etc.

One major advantage of developing software with Java is its portability. Once you have written code for a Java program on a notebook computer, it is very easy to move the code to a mobile device. When the language was invented in 1991 by James Gosling of Sun Microsystems (later acquired by Oracle), the primary goal was to be able to "write once, run anywhere."

We have done a project on **Inventory Management System**.

What is Inventory Management?

Inventory management refers to the process of ordering, storing, using, and selling a company's inventory. This includes the management of raw materials, components, and finished products, as well as warehousing and processing of such items. The goal of inventory management is to have the right products in the right place at the right time.

A company's inventory is one of its most valuable assets. In retail, manufacturing, food services, and other inventory-intensive sectors, a company's inputs and finished products are the core of its business. A shortage of inventory when and where it's needed can be extremely detrimental.

About Our Project

Our project is about how inventory management can be used in BITS and other colleges. Inventory management can be mainly used in colleges to keep a record of the equipments in the lab. It can be used to manage the borrowing and selling of different equipments available. The record will help us keep a track of our inventory and can be very useful when needed.

Our project takes care of all these functions. It helps us take care of the items available and helps us place orders if required. The dynamic coding of our project will help us achieve all the functions to take care and manage the inventory of our college.

Concepts used:

Encapsulation: It is the object-oriented procedure of combining the data members and data methods of the class inside the user-defined class. We have used this throughout the project to create classes and store variables (private) in such a way that they can be accessed only using the methods present in that class.

Inheritance: Different classes created can be inherited so we get the properties of one class to the other. We used inheritance in such a way that all classes inherit from javax.swing.JFrame in order to get elements like labels, buttons, panels, frames, etc from the parent class so that we can design the interface.

Polymorphism: Polymorphism means "many forms", and it occurs when we have many classes that are related to each other by inheritance. We have used polymorphism to modify the methods present in the parent class i.e., javax.swing.JFrame to customize the components such as buttons, labels, text fields, password fields, etc in order to suit the functionality of the program.

GUI: Java swing is used for the design of the project. This concept is being used as the major tool for this project, we have used both java.awt and java.swing in order to model this application place elements like buttons, tables, etc, and map the corresponding functionalities. Every part of this project has incorporated the features from the above-mentioned modules to develop this GUI-based application.

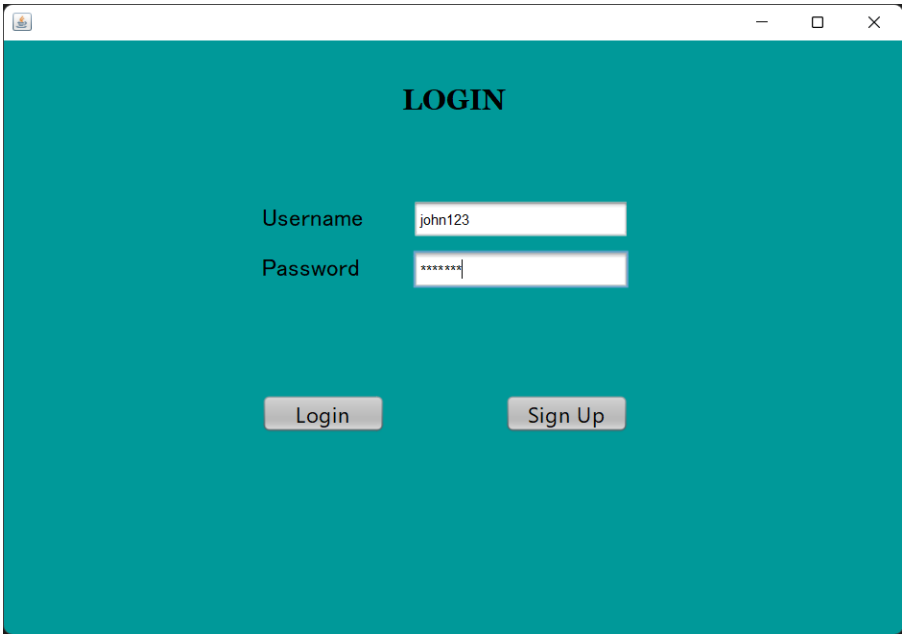
MySQL connectivity: Java MySQL connectivity serves as the backbone of this project to store the runtime information on a localized server running on the local systems. Any data obtained during run time is stored in the database and can be reused on the next run.

Exception handling: As we are using the java SQL connector and JDBC driver this concept helps us to check if a connection is being established with the SQL server or not, print appropriate errors if not, and handle them to ensure the smooth running of the application.

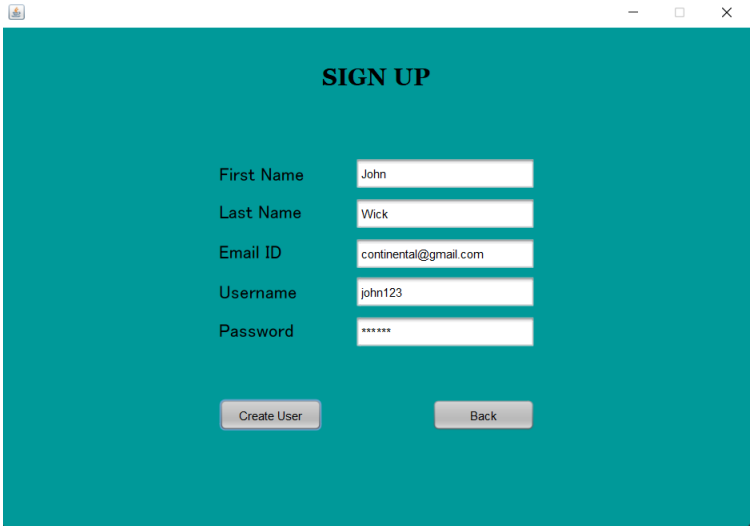
OUTPUT:

The loading screen when we run the program:

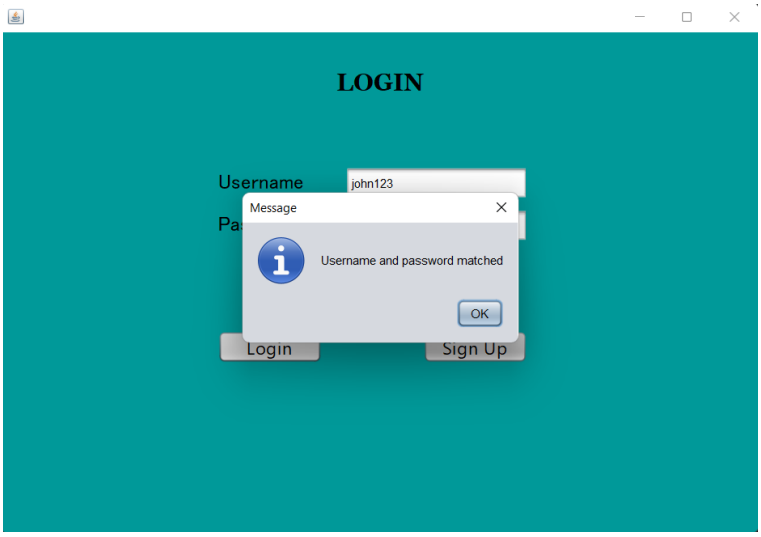
The login page:



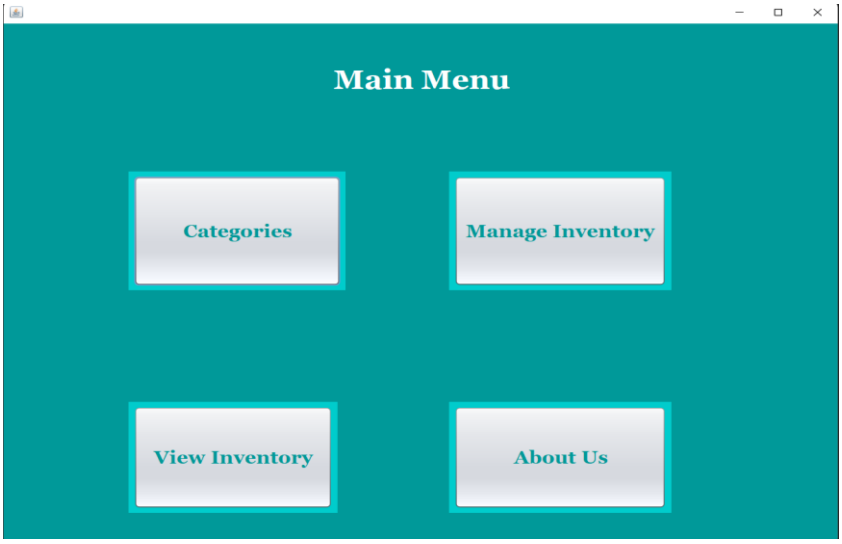
The sign-up page:



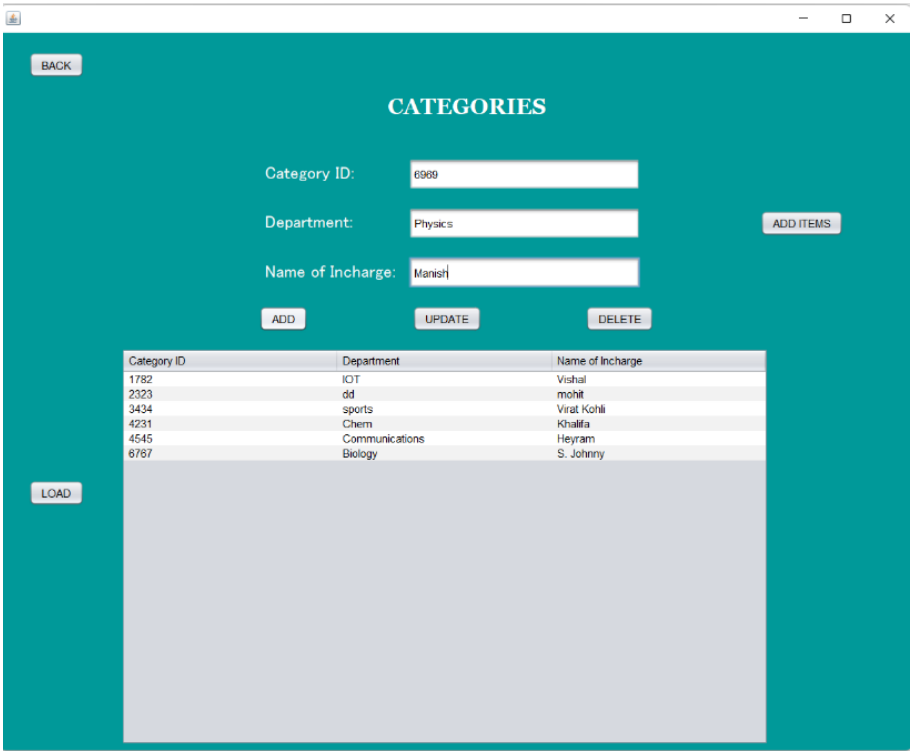
When the login becomes successful:



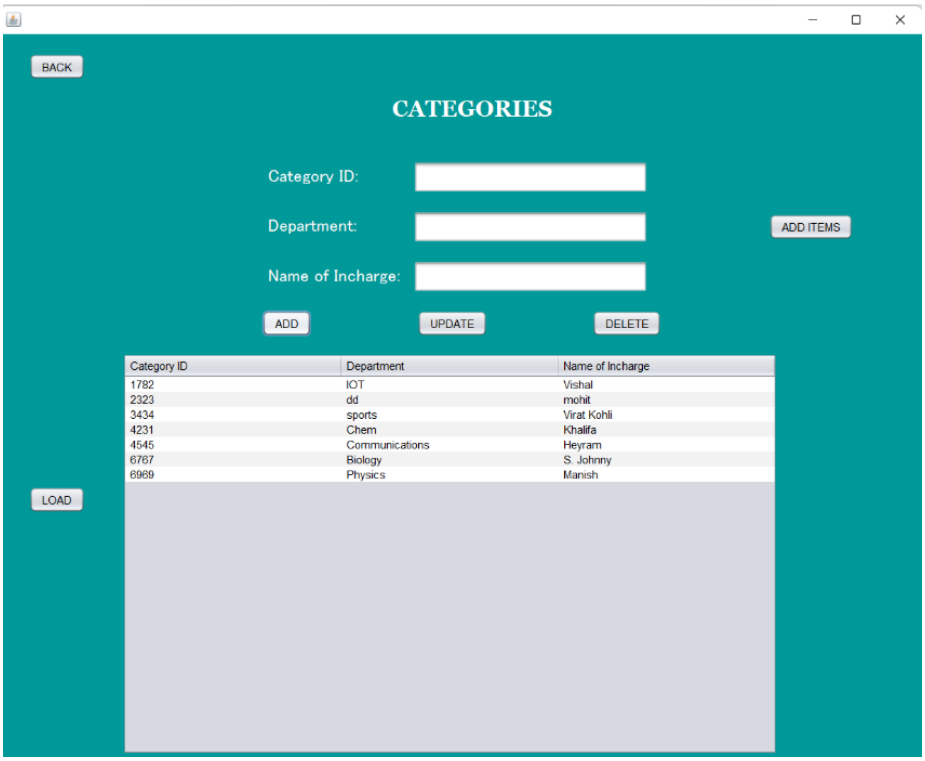
After login the main menu opens:



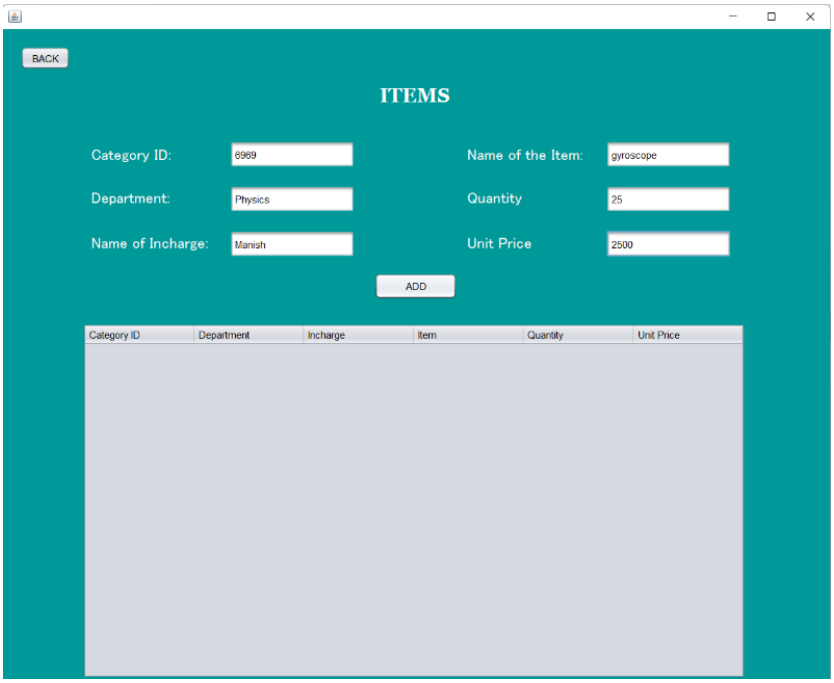
When you click on category and click on the load button, the departments will be displayed



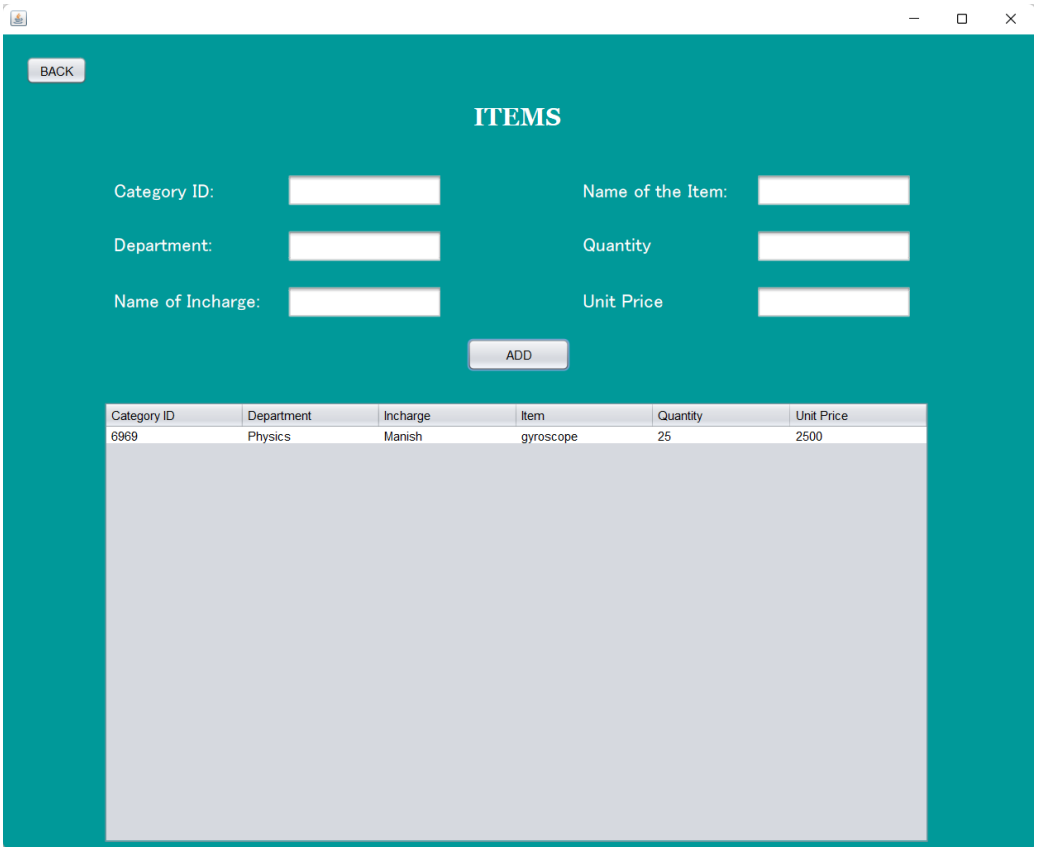
After you type the fields to add to the table, the last row of info gets added:



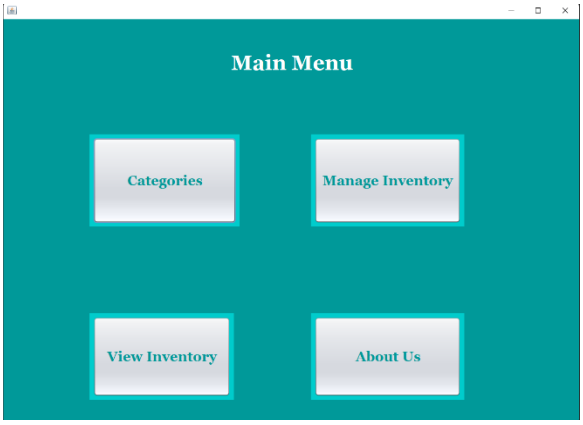
After you click on the add items button on the right, we can add the information of the items to the respective departments:



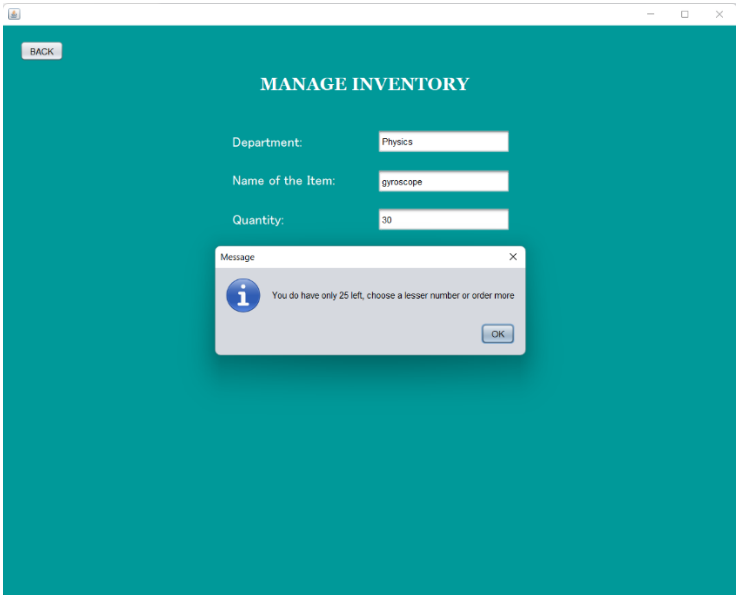
After typing out the category id ,which is added already, and the item, quantity and unit price:



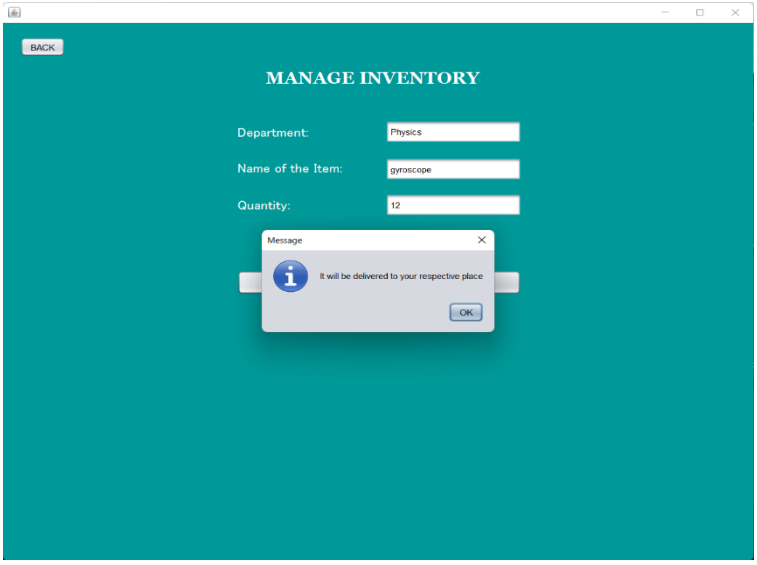
Then back to the main menu:



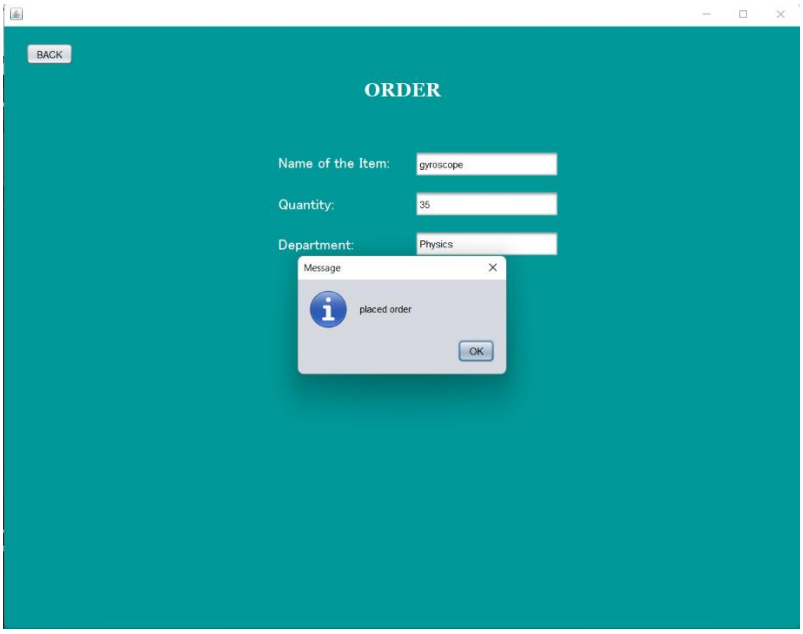
Then after we click on the manage inventory- we can either borrow or order items
When we try to borrow items more than the existing items (borrow unsuccessful):



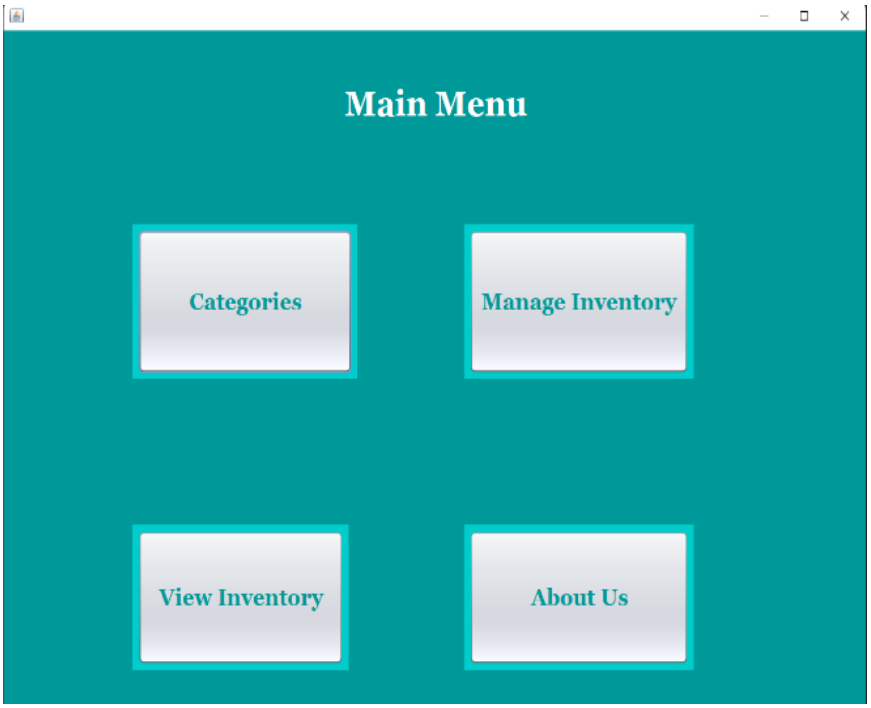
When we try to borrow items lesser than the existing items (borrow successful):



When we order items:

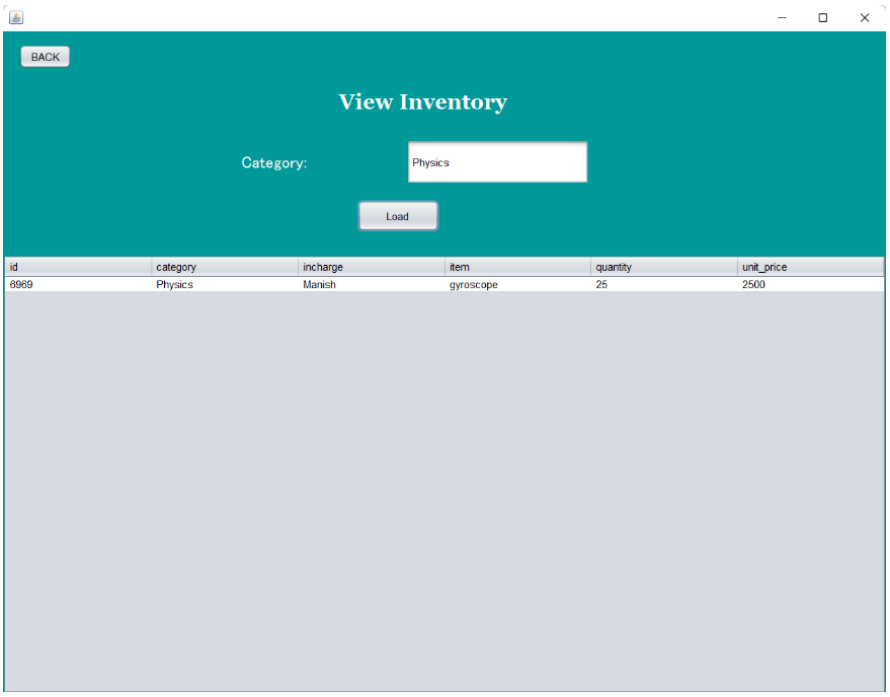


Then we go back to the main menu:

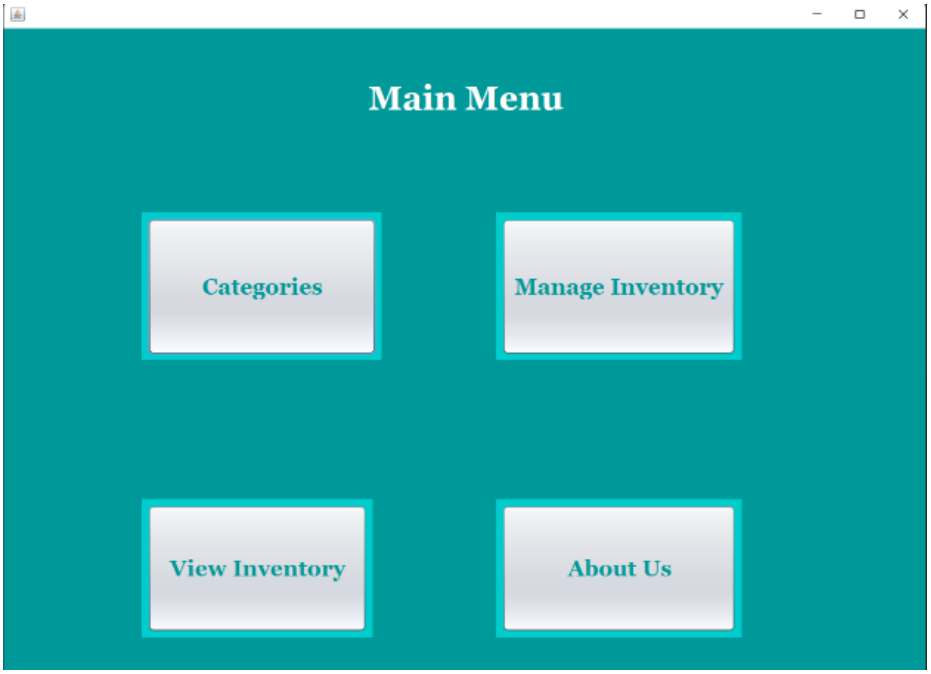


Then we go to view inventories:

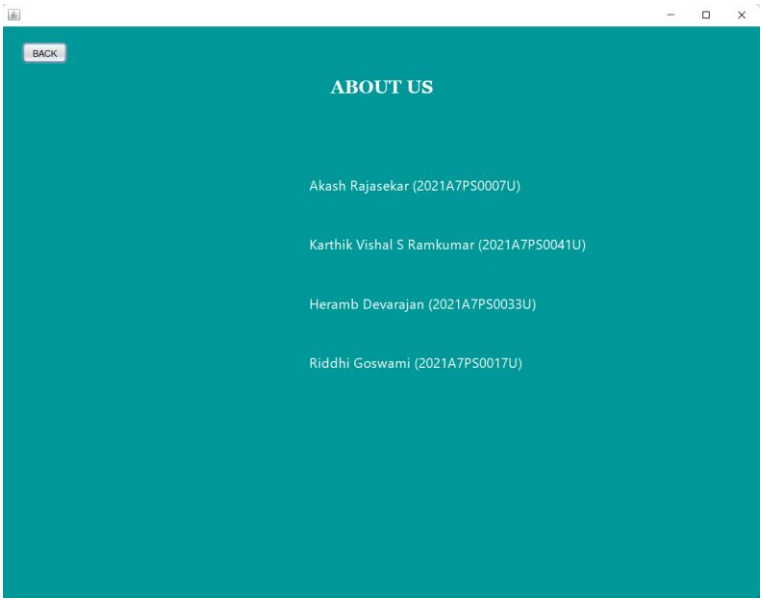
Then we fill which department or category you want to view the items of:



Then we go back to the main menu:



Then we go to about us:



What went well?

We were able to successfully connect our project to MySQL database. MySQL is one of the most recognizable technologies in the modern big data ecosystem. Often called the most popular database and currently enjoying widespread, effective use regardless of industry.

With the help of MySQL, we can successfully create tables and use them as a database to store all the values. This way when we close the program all previously entered values are not lost and will be stored for later use. Therefore, the database is helpful in making the project more dynamic and user-friendly.

What could have been better?

The problem we faced is that the database is stored on the local systems alone and not on a centralized server. As it is on the local systems, it is not a public server that everyone can access. If we were able to host a server then this problem could have been eliminated and, we would have been able to make the program in such a way that multiple users could have access to the database at the same time.

If worked on this project more, it is possible to make a very effective and user-friendly inventory management. And this can be implemented in all the colleges to keep track of their inventory and help the students with the things they want.