1. Introduction

1.1. Recognition of need:

Currently there is no system for students to purchase / sell used (old) goods within a college campus environment. As student comes to campus from different cities, they need many goods and when they move after completing their course they need to sell their used goods.

1.2. Problem identification and requirements:

As a new student in a college, it is difficult to find the sellers of used goods and connect them with potential buyers. There is no integrated platform to offer solution of above stated problem. Thus, we need a platform viz. CollegeKart to solve above stated problem.

1.2.1. To build a platform for achieving the above mentioned objective where user can list his goods on the portal which he wishes to sell, and another set of users who are buyers can see the available goods to buy them.

1.2.2. To integrate communication tools to facilitate buyer-seller interaction like whatsapp integration.

Some major functional requirements are as follows:

a. User registration and login
b. Product listings with details, images, and prices
c. Communication tool (whatsapp) to facilitate buyer-seller interactions
d. Admin panel to manage product listings and user accounts

1.3. Advantages of CollegeKart:

1.3.1. Convenience: CollegeKart provides a convenient and accessible platform for students to buy and sell used goods on campus, making it easier for students to find the items they need and to get rid of items they no longer need.

1.3.2. Cost-effective: By buying and selling used goods on CollegeKart, students can save money on the cost of purchasing new items, making it more affordable for them to live and study on campus.

1.3.3. Sustainable: By facilitating the buying and selling of used goods, CollegeKart promotes sustainability by reducing the amount of waste generated on campus and encouraging students to reuse and recycle items.

1.3.4. Community building: CollegeKart can help to build a sense of community among students by connecting them with their peers and encouraging them to support each other through the buying and selling process.

1.3.5. Student-focused: Because CollegeKart is designed specifically for students, it can provide features and functionality that are tailored to their unique needs and preferences, making it more user-friendly and effective than generic e-commerce platforms.

1.3.6. Revenue stream: CollegeKart can generate revenue through commissions on transactions, advertising, and partnerships with local businesses, providing a potential revenue stream for the platform and its creators.

Overall, the CollegeKart e-commerce platform has the potential to provide numerous benefits for students, both in terms of convenience, cost savings, and sustainability, as well as in terms of building community and fostering student-focused innovation.

1.4. Information gathering tools and strategies:

1.4.1. Surveys: Conducted surveys to gather information about students' buying and selling habits, and what types of goods they are interested in purchasing and selling. Conducted survey in MITS Gwalior.

1.4.2. Focus groups: Hosted focus groups with students to gather more detailed information about their needs and preferences, and to test out different features of the platform. Hosted group discussion sessions in general with certain batch mates.

1.4.3. Online research: Conducted online research to see what types of e-commerce platforms already exist for students, what features they offer, and how successful they are. Visited websites like: quikr, olx, indiamart, facebook marketplace etc.

1.4.4. Interviews: Conducted one-on-one interviews with students, particularly those who have recently moved to campus or who are preparing to move away, to gather more detailed information about their specific needs and pain points. One-on-one interviews with Mayank Singh Jadoun (M.C.A-8103991441), Chanchal Khare (B.I.D.-9340127561), Alok Sharma (M.C.A.-7974152081), Manav Arora (B.TECH.- 8965952196)

1.4.5. User testing: Conducted user testing with a small group of students to gather feedback on the user experience, identify any usability issues, and test out new features before rolling them out to a wider audience.

2. System Analysis

2.1. Feasibility Study

2.1.1. Economic feasibility:

S. no.	Title	Amount/Time
1.	Backend Developer	₹ 2,500/-
2.	Database Administrator	₹ 2,000/-
3.	Frontend Designer	₹ 2,000/-
4.	Hardware Cost	₹ 1,000/-
5.	Software Cost	₹ 1,500/-
6.	Utilities Cost	₹ 2,000/-
7.	Miscellaneous Expenses	₹ 1,000/-
	Total	₹ 12,000/-

Completion time: 60 working days.

2.1.2. Technical feasibility:

S. No.	Title	Details
1	Frontend	HTML, CSS, Bootstrap 5
2	Backend	Node.js, Express.js
3	Database	MySql Workbench 8.0 CE

2.1.3. Behavioral feasibility:

The project aims at maximizing the customer friendliness. This is intended to overcome the resistance to change by the students (end-users). The user can easily use the project website as website does not need any special guidance. The following measures are being taken to ensure the same:

2.1.3.1. The platform will be as much easy to use as possible, convenient, and provide value to users and will be also addressing any concerns that users may have about security, privacy, and trust.

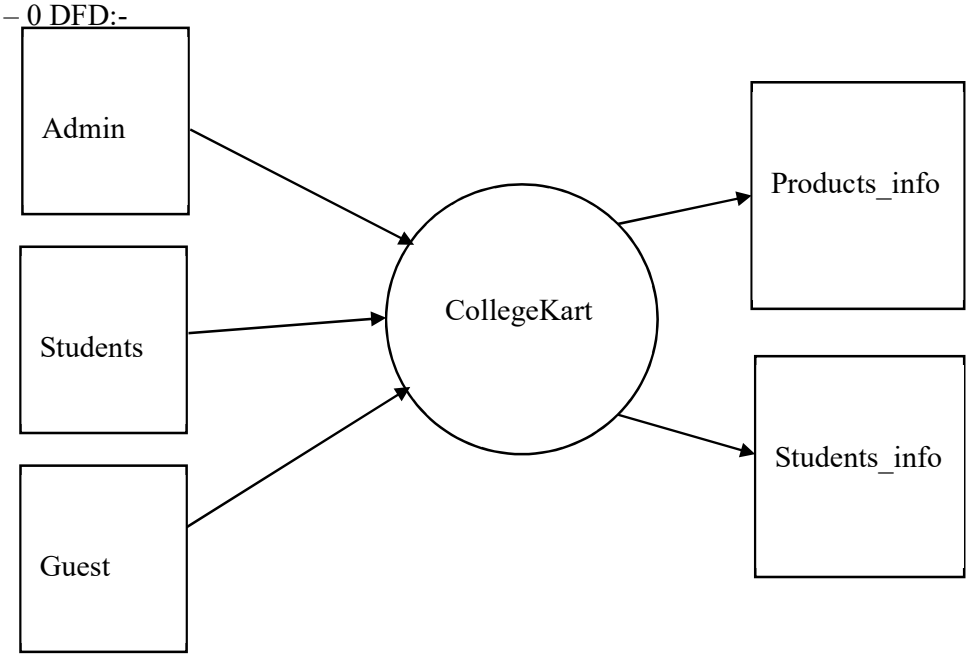
2.1.3.2. To maintain user engagement, CollegeKart platform can encourage user for participation and foster a sense of community among users. This could include features such as user reviews and ratings, forums for discussion, and social media integration.

2.1.3.3. CollegeKart will be receptive to user feedback and be willing to make changes and improvements based on user suggestions. This can help to build trust and improve user engagement and retention.

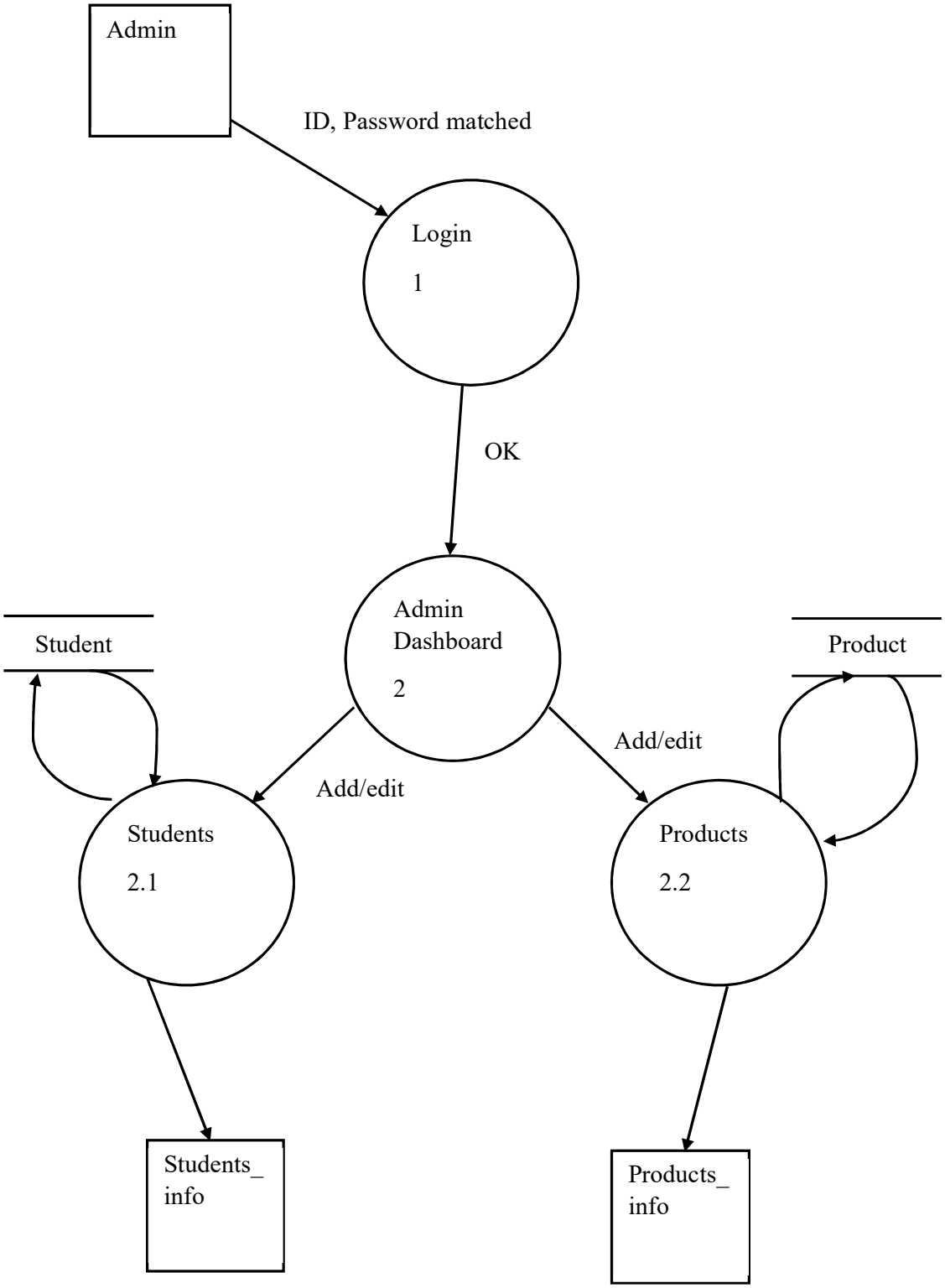
2.1.3.4. We would be providing user training modules/sessions so as to facilitate easier adaptation of the CollegeKart website.

2.2. Data Flow Diagram

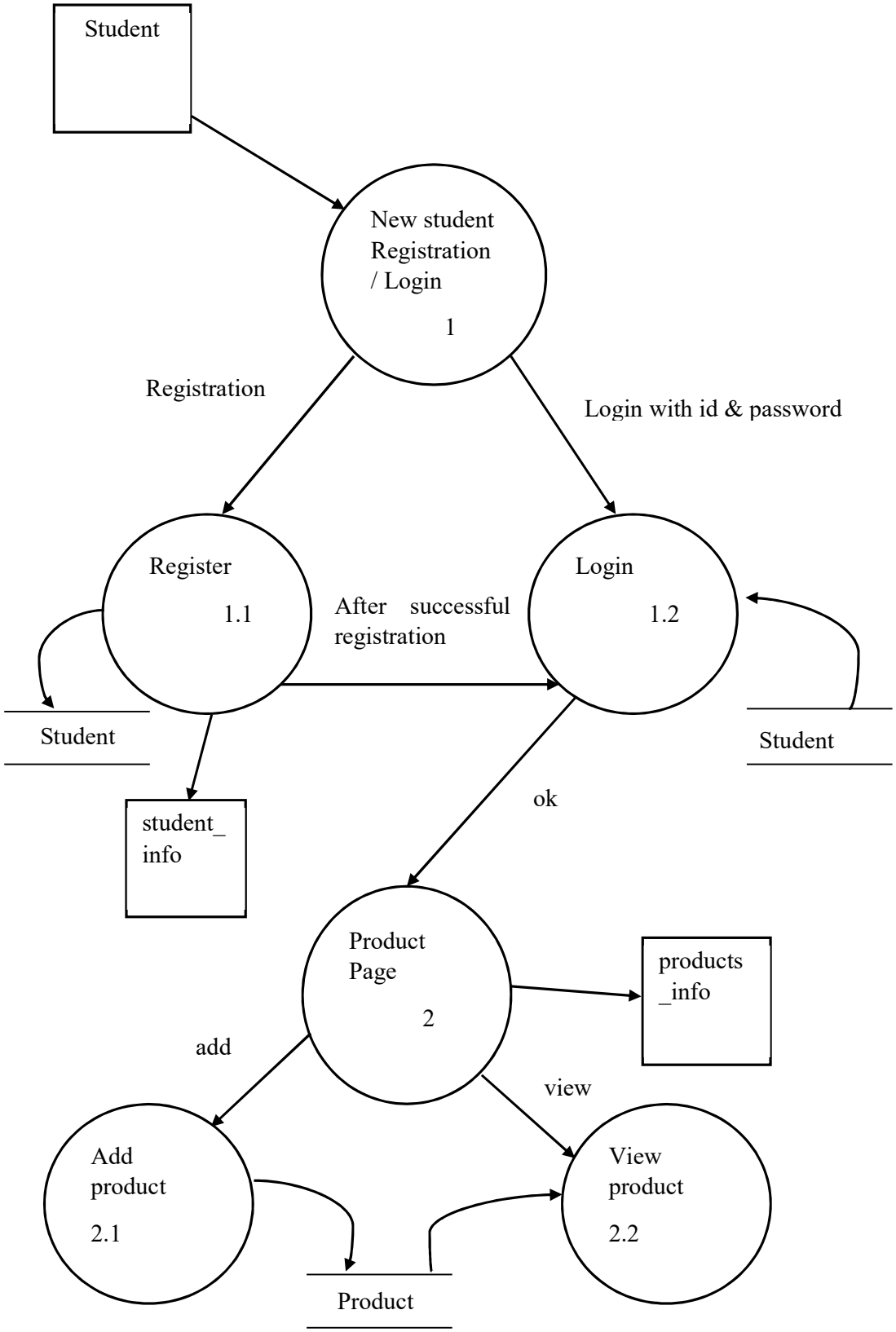
Level – 0 DFD:-



Level – 1 DFD for Admin:-



Level – 1 DFD for Student:-



3. System Design

3.1. Table Structure

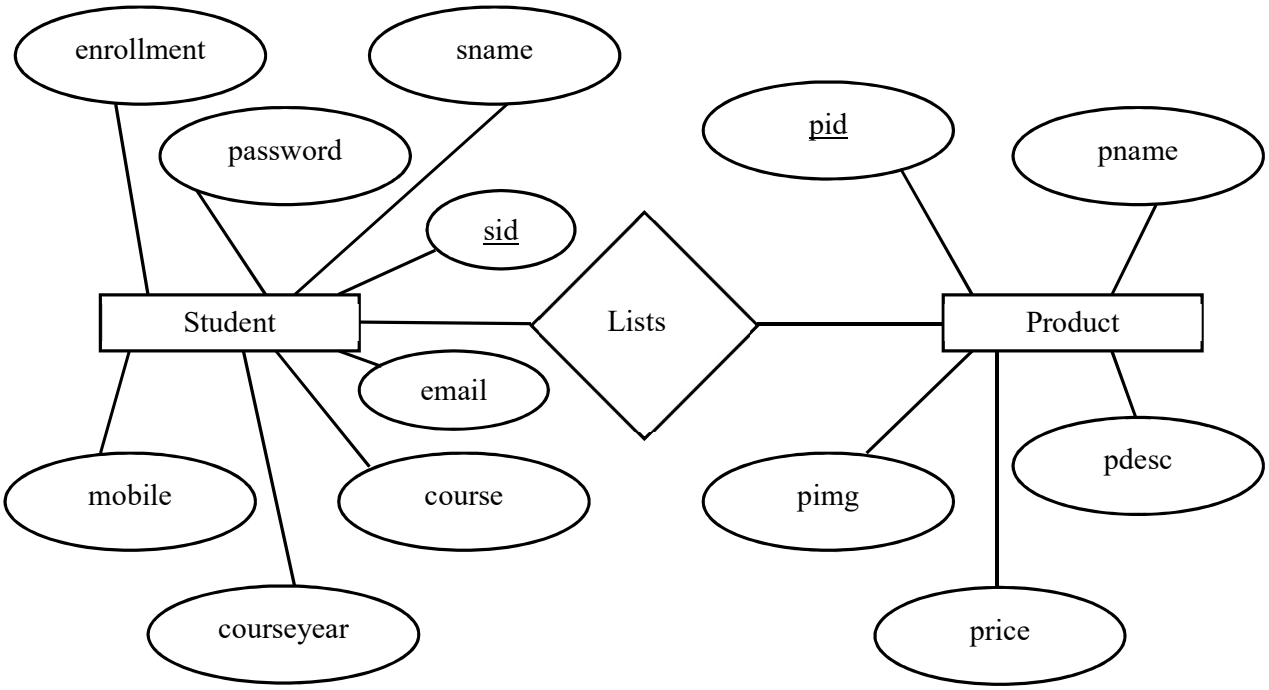
3.1.1. Student Table

Field	Data Type	Null	Key	Extra
Sid	int	no	primary	auto-increment
Enrollment	varchar(12)	yes	unique	
Sname	varchar(40)	yes		
Course	varchar(10)	yes		
Courseyear	int	yes		
Password	varchar(225)	yes		
Mobile	bigint	yes		
Email	varchar(225)	yes		

3.1.2. Product Table

Field	Data Type	Null	Key	Extra
pid	int	no	primary	auto-increment
pname	varchar(40)	yes		
pdesc	varchar(100)	yes		
pimg	text	yes		
price	varchar(45)	yes		
sid	int	yes	foreign	

3.2. ER Diagram



4. Coding/Testing

4.1. Unit Testing: We perform unit testing on each and every smallest unit of the developed website individually to check its working. We used test data to perform the testing. We try possibly each and every type of inputs to check their corresponding outputs, and its related working. We performed these tests on admin login, student sign up, student login, add listing and feedback form. We also tested the two modules individually viz. admin module and student module.

Test Case id	Test scenario	Test steps	Test data	Expected result	Actual Result
001	Admin Login	#1 Opened website. #2 Clicked on Admin button.	Admin entered valid credentials.	Admin was able to login.	As expected.
002	Student Sign-up	#1 Opened website. #2 Clicked on Register button.	Student entered his/her details.	Student was able to fill the form and data was added to the student table.	As expected.
003	Student Login	#1 Opened website. #2 Clicked on Login button.	Student entered his/ her valid credentials.	Student was able to login and data was fetched from the table.	As expected.
004	Add Listing	#1 Opened website. #2 Clicked on Login button. #3 Clicked on my products and then add product.	Student entered product details.	Student was able to add product under his account and data was stored in product table.	As expected.
005	Feedback form	#1 Opened website. #2 Scroll down to connect with us section.	User fills the fields.	User was able to fill the details and click on submit button, data was added to the feedback table.	As expected.

4.2. **Integration Testing:** We also performed integration testing on this website. For this testing we integrated all the individual units, and then checked the working of each module with every other module. We integrated the admin module, student module, and other homepage functionalities as a complete website to check its overall working.

4.3. **Validation testing:** We also performed validation testing. Three tests are performed on the final design that validates the ability of the system to operate as specified. We perform these tests to check whether the student was able to add products, and sign in properly. Also we checked whether or not admin was able to view student details, product details and edit these.

4.3.1. **Admin login-** Admin can login and perform privileged operations on the website.

4.3.2. **Student registration-** Students can register themselves, and no registered student can re-register themselves.

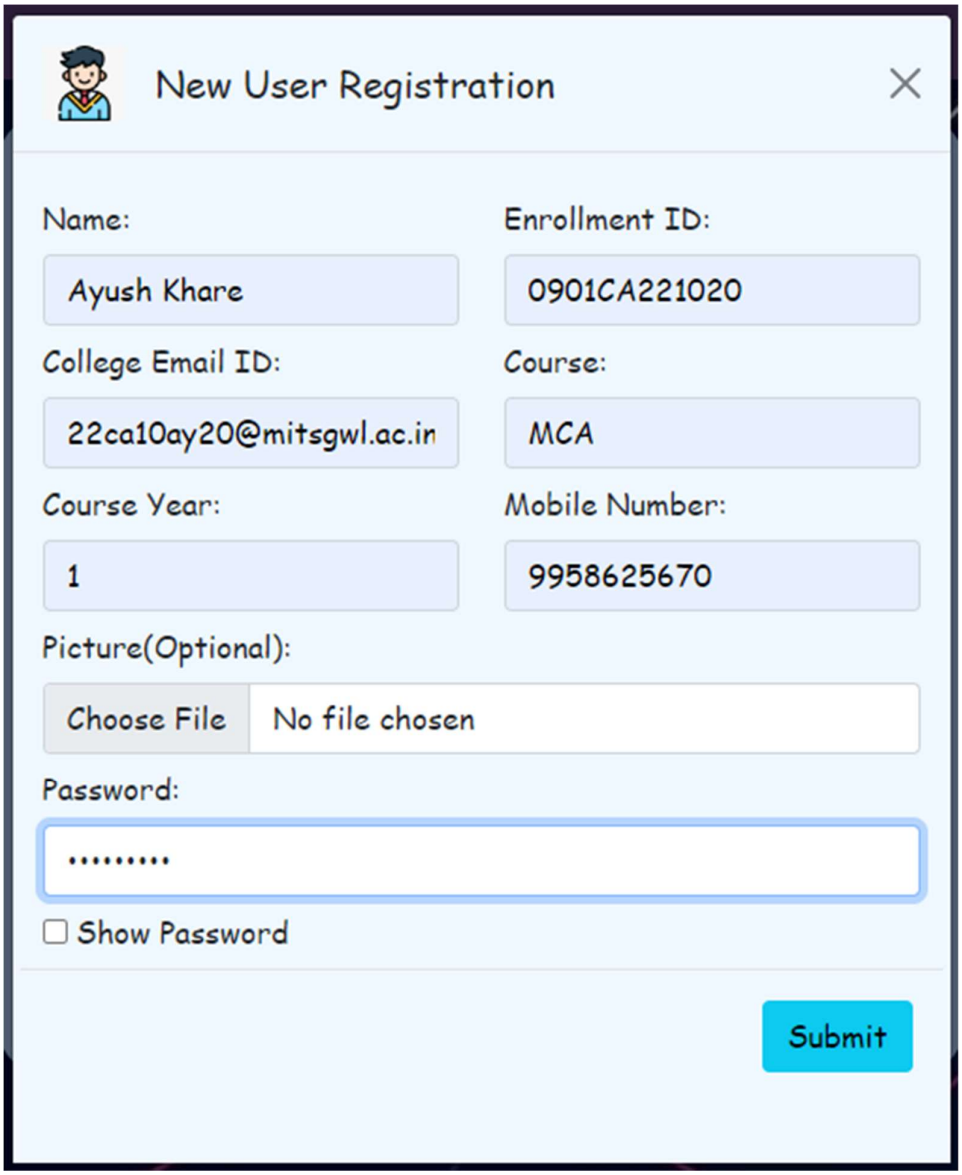
4.3.3. **Student login-** Only already registered students can login to the website that too only with correct login credentials.

4.3.4. **Add product-** Student can add products only after logging in the website.

4.3.5. **Admin edits-** Administrator can edit the student data and product data as per the student's requests if any, he can also edit the data without any requests if he wishes to. Moreover, he can add products by himself as well.

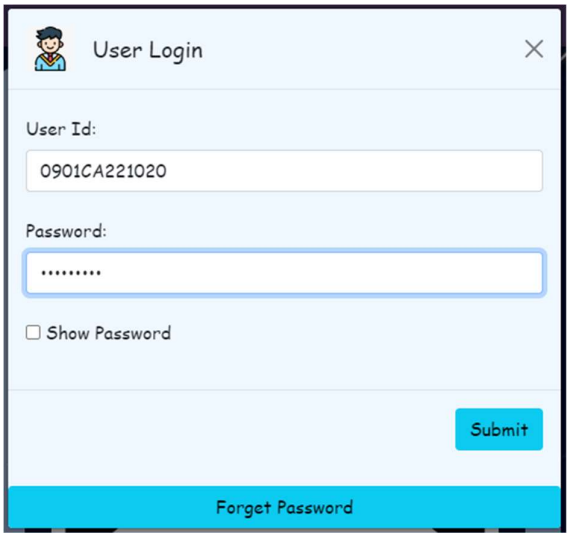
5. Sample Forms and Reports

5.1. Registration form



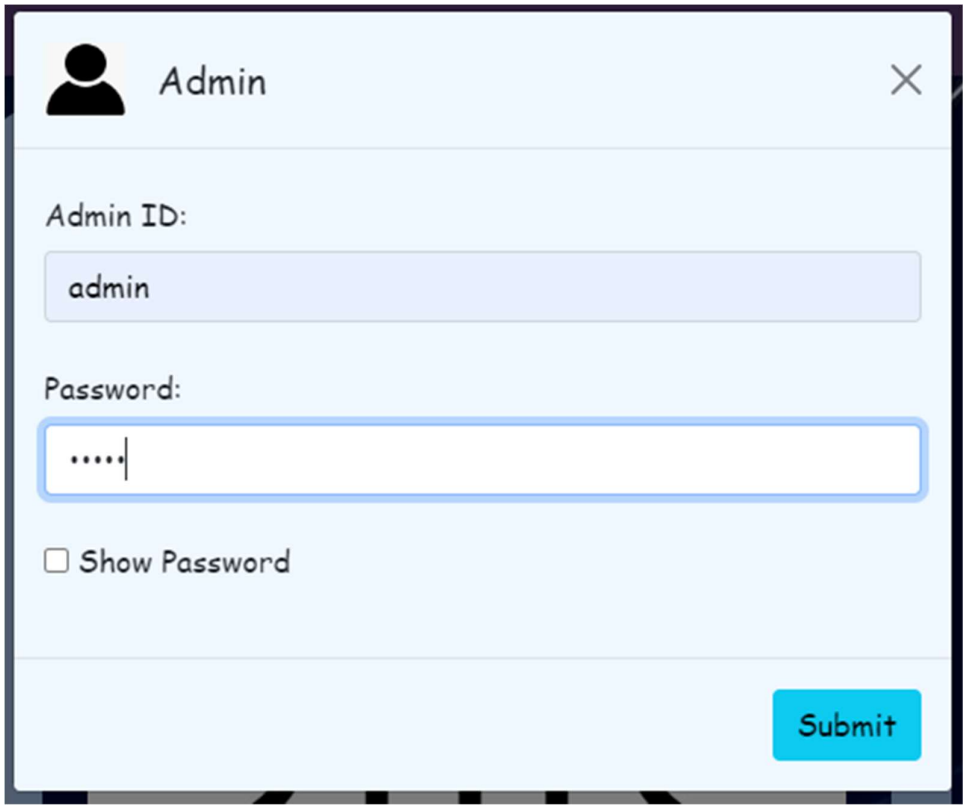
Above is the layout of student registration form with filled details.

5.2. Login Form



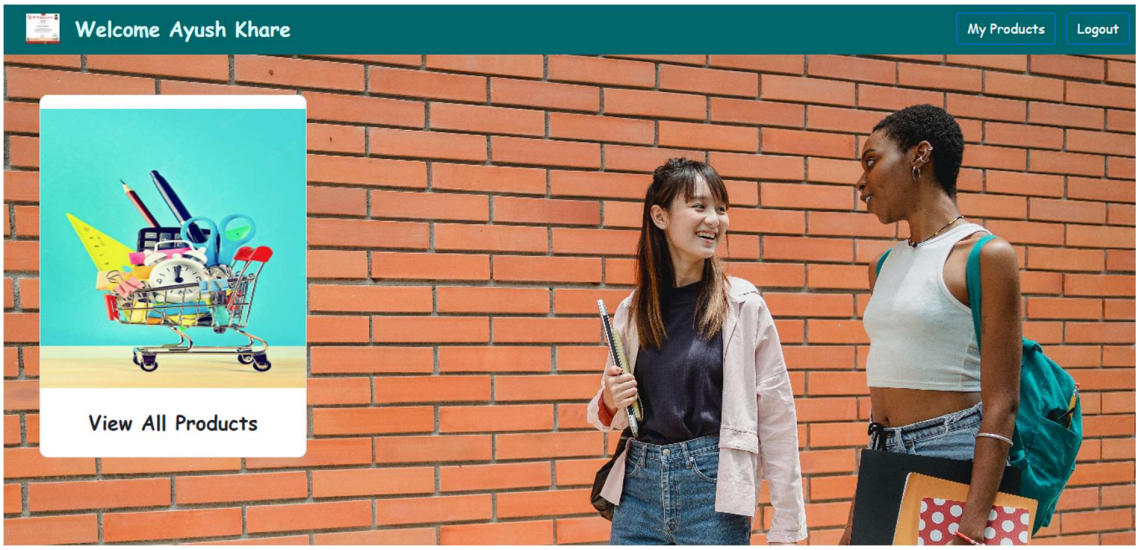
Above is the layout of login form with filled details of a student.

5.3. Admin Dashboard



Above is the snapshot of admin login form with filled details.

5.4. User Interface



Above is the dashboard of user, once he have logged in to the portal.

5.5. All Products

5.6. My Products

5.7. Add Product

6. Conclusion

7. Future Work

8. Bibliography

W3schools(html/css/Javascript)

Nodejs(official)

Bootstrap5

Sql workbench download link