

Student Complaint Management System

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Abstract: Nowadays, people's living culture has been changed and evolved by technological advancement. We can easily communicate, exchange information, and cooperate globally through websites, e-mail, instant messaging systems, social networking sites, and other internet-based communication systems. The education system has become a part of technology evolution where students can accomplish a lot of tasks via applications and websites. However, the conventional way of complaining process about university facilities has shown several weaknesses and difficulties. Therefore, a complaints management system has been developed in this study which identifies a set of options that can be used to manage and collect student complaints to monitor, track the progress report, and solve student issues. To achieve the aim of this study, a system was developed based on a prototype model that contains four stages which are; planning, analysis, design, and implementation. Moreover, Brackets Software has been used as a software editor as well as PHP as a programming language, and MySQL as the database. As a result, the complaints management system is easily accessible and presented to complainants where students can submit their complaints at anytime and anywhere.

Keywords: Complaint System, Complaint Management, Web-based System

1. Introduction

The advancement of technology has transformed people's living culture. Nowadays, people can easily communicate, exchange information, and cooperate globally through websites, e-mail, instant messaging systems, social networking sites, and other internet-based communication systems. This has a great impact on academic growth and educational development, and from various concerns in the academic environment to promote a social and practical educational system [1]. Academic development has different significance in an educational context to support social and practical learning systems. If an effective educational system is created, the issue of the University's complaints management system needs to be dealt with. This issue is one of many issues that has adversely affected academic development in multiple aspects related to the education support system. Currently, the existing complaints system is managed by the conventional process by using a paper-based technique. For the student to make a formal complaint, they must submit it to the designated location that usually to the

management office. Then, the students will be assisted by the officer on how to convey information on complaints and directly submitted to the management. However, the drawbacks of this manual system are that it will take time to file their complaint, the application must be done within the university location, and did not receive any status or update about the complaints. Therefore, a complaints management system has been developed in this study which identifies a set of options that can be used to manage and collect student complaints to monitor, track the progress report, and solve student issues.

Several objectives have been identified before the project development starts, firstly, this project aims to analyze and design a student complaint management system for the University of Science and Technology in Yemen. Secondly is to develop and provide an efficient complaint management system to overcome the current issue that happened in the university facilities. Finally, the outcome of the system will go through the testing and evaluation phases to ensure the effectiveness of the system and has fulfilled all the objectives. Besides, the scope of this project will focus on developing an online complaints management system that will be used for the University of Science and Technology in Yemen. There are two types of scope in this project; the user scope and the system scope. This system will have two users the first will be the administrator, and the second will be the student. Meanwhile, the system scope is consisting of the details of the hardware and software used, and the modules involved in the system development.

This proceeding paper will go through several phases starting with the related works which involve the gap works of three previous systems, as well as this current system, which will incorporate additional features while avoiding such errors. Next phase, the methodology that uses the prototype model for building this system following by the data flow diagrams. After that, the results phase is taking the designing website using PHP as a programming language and MySQL as a database. Then, in the form of tables, the overall findings for testing models are shown. The final phase is the conclusion that summarizes this proceeding paper.

2. Related Work

2.1 Complaint management system

Generally, a literature review is both a summary and explanation of the complete and current state of knowledge on a limited topic as found in academic books and journal articles. However, a Student Complaint Management System is not a new idea in the area of web-based complaint management, many experiences are implemented in many universities and organizations around the world. There is certainly a lot of similar online sites as shown in Table 1, such as Zoho Desk, Online Students' Complaint (Case Study of English Study Program at Victory University, Sorong), and Online Complaint Management System [2].

Reviewing similar systems is very important to envelop a new system to get some idea, modules, functionality, advantage, and disadvantages. Hence, there are many complaint management systems for different purposes but the case study focusing on the universities. during the three similar systems will know the strength and the weak points and how can developed the project system.

2.2 Zoho Desk

With multichannel capabilities, comprehensive reporting tools, and cross-functional cooperation, the Zoho desk enables you to receive, respond to, and address customer complaints. It enables you to address various issues with straightforward solutions, freeing your time for more important duties. Zoho's free plan includes three users, allowing you to jumpstart your customer's compliant management activities [3].

2.3 Online Students' Complaint

This is the English Study Program of Victory University, Sorong's online student complaint management system. Started in 2018 and has developed a system for resolving online student grievances. Through its implementation, we can see that it has resulted in the development of an efficient and versatile framework that students can access at any time and from any location. It aided the English Study Program in resolving and resolving grievances, allowing it to assess the strengths and weaknesses of its body as an educational service provider and develop a more effective strategy for quickly and easily improving its service. By utilizing the client's inputs, the prototype model aided us in developing this software. This online complaint is the result of realistic implementation as a whole, capable of providing details more quickly, precisely, and accurately than the manual method. This research has limitations in terms of data protection. The researcher proposes to incorporate the algorithm framework for further study to enhance data security and to integrate this system into the other systems in the system's body, such as the English Study Program. [4].

2.4 Online Complaint Management System

Online Complaint Management System (OCMS) enables the public to resolve issues more quickly and effectively while also eradicating corruption. The complaints management system aims to make filing complaints easier, monitor complaints handling, and identify and target problem areas. Online complaint management is a customer service management strategy used to examine, analyze, and resolve customer complaints. A complaint resolution system is used to track, identify, and resolve customer complaints, requests, and feedback, as well as handle any other kind of communication [5].

2.5 Comparison of existing similar systems

Table 1: System's comparison

Features/ System	Zoho Desk	Online Students' Complaint	Online Complaint Management System	Student Complaint Management System
User Registration module	✓	✓	✓	✓
Sign in module	✓	✓	✓	✓
Update user information module	✓	✓	✓	✓
Admin Sign in module	✗	✗	✓	✓
Update Admin information module	✗	✗	✓	✓
Forgot password	✗	✗	✗	✓
Homepage	✓	✓	✓	✓
Upload image	✓	✓	✓	✓

Post complaint	✓	✓	✓	✓
Upload document	✓	✓	✓	✓
Write complaint	✗	✓	✗	✓

3. Methodology

A methodology for system development refers to the structuring and organizing of the process for the development of an information system. There are many types of system construction methodologies that are not appropriate for use in all development projects. Each of them is suitable for a specific project based on focus, accuracy, precision, and selective considerations [6].

3.1 Prototype Model

The prototype model as shown in Figure 3.1 is an excellent choice for building this project. A design was developed with three distinct phases: gathering requirements, sketching mockups and testing with potential customers. This model is designed to open up so that the user and the designer can communicate. Preventing disputes can be very beneficial through these kinds of engagement. [7].

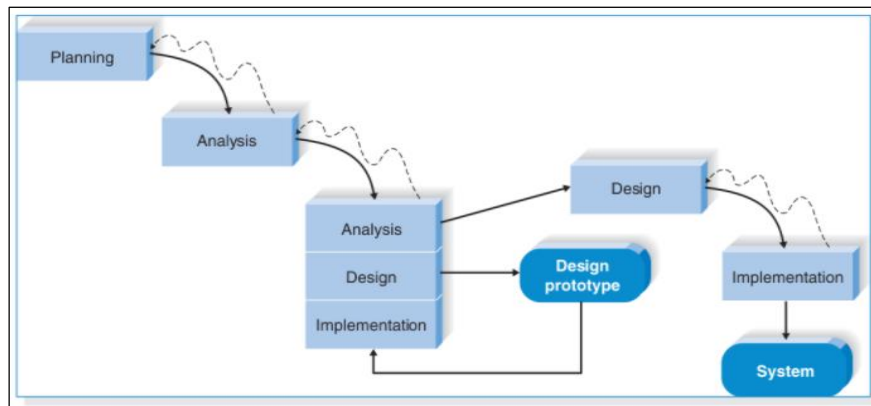


Figure 3.1: Prototype model [7]

Referring to Table 2, which details the software development activities and their associated tasks, the terms planning, analysis, design, and implementation are highlighted. Additionally, it displays the task and the output.

Table 2: Software development activities and their task

Phase	Task	Output
Planning	The project suggested.	Project proposal.
	Establish the project's timeline, activities, and outcomes.	Develop Gantt Chart. Identified user.
Analysis	Study User- Need.	Use class diagram.
	Feasibility.	Diagram and architecture of the system.
Design	Design class.	Test plan.
	Methods.	User interface design.
	Attributes.	Database schema table.

Implementation	Produce a functional system. Process of coding.	Expert system document. Functional outcome (system).
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3.2 Analysis and Design

The analysis emphasizes an investigation of the problem and requirements, rather than a solution. An analysis is a broad term, best qualified, as in requirements analysis (an investigation of the requirements) or objects analysis (an investigation of the domain objects). Meanwhile, the design emphasizes a conceptual solution that fulfills the requirements, rather than its implementation. For example, a description of a database schema and software objects. Ultimately, designs can be implemented.

3.2.1 Context Diagram

Figure 3.2 illustrates the context diagram of this project, it can be seen that the context diagram is a top-level, or least-detailed diagram of an information system. The diagram describes data flow into and out of the system and into and out of external entities. External entities are items such as persons, places, or things outside a system that send data to, or receive data from, a system [8].

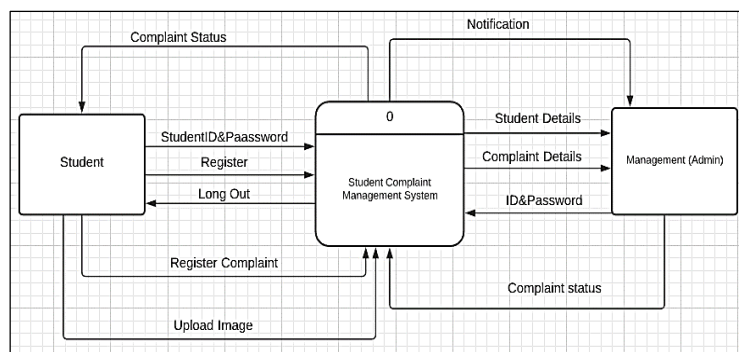


Figure 3.2 : Context diagram

3.2.2 Data Flow Diagram

This system is using a data flow diagram (DFD) which is a graphical representation of a system whereas a DFD depicts a system’s components, the data flows among the components, and the sources, destinations, and storage of data, in which case the DFD will be considered as a figure (see appendix Figure A) [9].

3.2.3 Entity Relationship Diagram

An entity-relationship diagram (ERD) is illustrated in Figure 3.3, which shows the relationships of entity sets stored in a database. An entity in this context is considered an object and component of data. Therefore, an entity set is a collection of similar entities that have attributed to define their property. By defining these entities and their attributes the relationships will be detected between them, ER diagram illustrates the logical structure of databases for the student complaint management system [10].

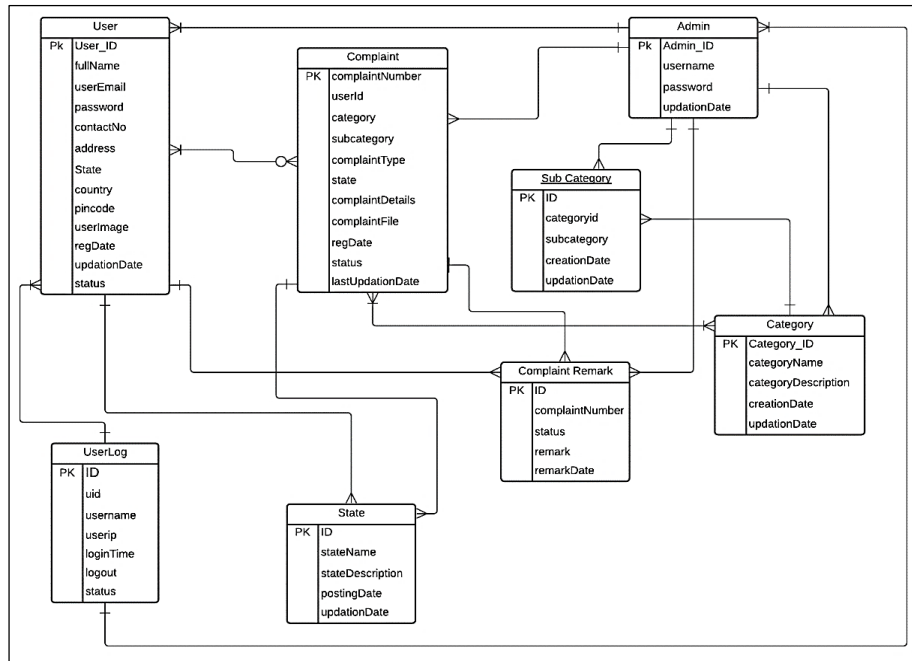


Figure 3.3 : Entity relationship diagram

4. Results and Discussion

This section presents the results obtained in terms of designing the student complaint management system website specifically the results are divided into several pages starting with IS conducted by PHP as the programming language and MySQL as the database. This system helps students to submit complaints easily and to help the university in organizing complaints and to provide solutions. This system will reduce the use of paper, time, and energy.

4.1 Homepage Interface Design

The SCMS homepage looks like as it appears in Figure 4.1. The logo of this system is shown on the page head and also in the middle. The same goes for the labeled sections which are “User Login,” “User Registration,” and “Admin,” that display on the page head.

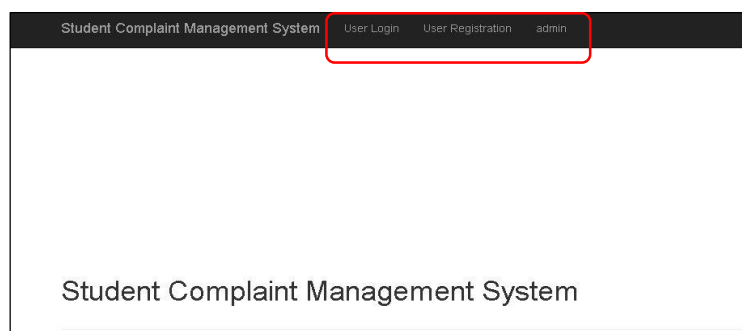


Figure 4.1 : Homepage interface design

4.2 User Interface Design

Graphic design and typography are utilized to support its usability, influencing how the user performs certain interactions and improving the aesthetic appeal of the design; design aesthetics may enhance or detract from the ability of users to use the functions of the interface.

4.2.1 Sign in Interface

The sign-in interface for the SCMS looks as it is shown in Figure 4.2. It shows the name logo which is the student complaint management system, and it shows the sign-in for the user which includes the user ID and password. However, there is also a forgot password section whenever the user forgets the password there is an option for forgot password. Finally, it also contains create an account if users sign in for the first time.

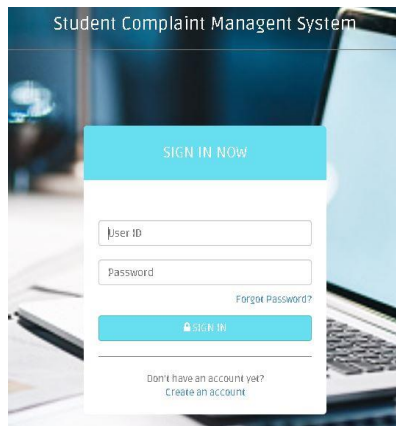


Figure 4.2 : Sign in interface

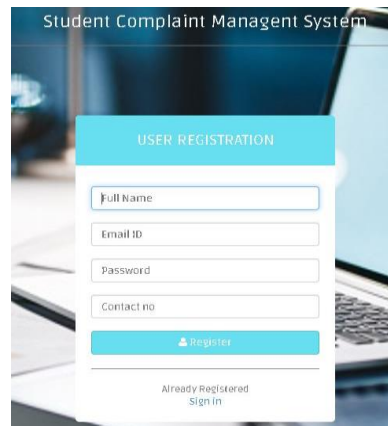


Figure 4.3 : Registration interface

4.2.2 Registration Interface

The Registration Interface for the SCMS looks as it is shown in Figure 4.3 above. It shows the name logo which is the student complaint management system, and it shows the registration for the user which includes the username, email ID, password, and contact no. However, there is also a sign-in if the user already has an account.

4.2.3 Register Complaint

Register Complaint interface for the SCMS as shown in Figure 4.4. Here user can register the complaint by select category, select -sub-category, complaint type, state, this complaint to, complaint details, complaint-related doc(if any), and then submit the complaint.

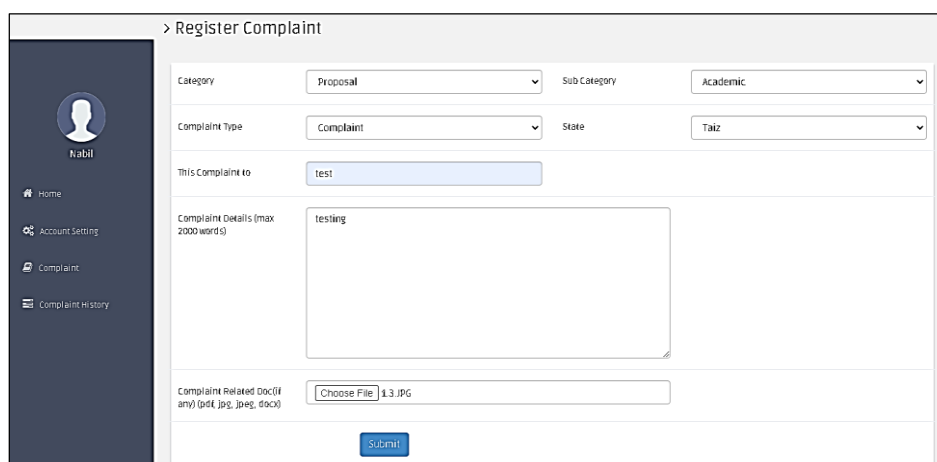


Figure 4.4 : Register complaint

4.2.4 Complaint History

The complaint History interface for the SCMS looks as shown in Figure 4.5. Here user can see the Complaint History by complaint number, last update date, Status “not process yet, in process, and

closed” finally the action, In this case, the system shows one of its advantages such as that the user can view the details of the action inserted by the admin.

Complaint Number	Reg Date	last Update date	Status	Action
31	2021-06-11 10:42:56	2021-06-11 11:18:33	In Process	View Details
32	2021-06-11 10:44:30	2021-06-11 11:20:26	closed	View Details
33	2021-06-11 10:45:38	2021-06-11 11:16:01	In Process	View Details
34	2021-06-11 10:46:24		Not Process Yet	View Details
35	2021-06-11 10:48:37		Not Process Yet	View Details

Figure 4.5 : Complaint history

4.2.5 Admin Manage Complaint

The admin home page interface for the SCMS looks as shown in Figure 4.6. In the manage complaint section, it shows all the complaints such as not Process yet, Pending Complaints, and closed complaints as well as the detail of the complaints can be viewed by the admin in order to take an action.

Complaint No	complainant Name	Reg Date	Status	Action
28	waleed	2021-06-07 17:29:52	Not process yet	View Details
31	Nabil	2021-06-11 10:42:56	Not process yet	View Details
32	Nabil	2021-06-11 10:44:30	Not process yet	View Details
33	Nabil	2021-06-11 10:45:38	Not process yet	View Details
34	Nabil	2021-06-11 10:46:24	Not process yet	View Details
35	Nabil	2021-06-11 10:48:37	Not process yet	View Details

Figure 4.6 : Admin Mange Complaint

4.2.6 Complaint Details

The Complaint Details interface for the SCMS looks as shown in Figure 4.7. It shows the complaint details which can view all the complaint details such as the date-time and type of complaints. Furthermore, the admin has full access to all the complaint details including viewing files that have been submitted by the user shown in figure18.

Complaint Details					
Complaint Number	33	Complainant Name	Nabil	Reg Date	2021-06-11 10:45:38
Category	Appreciation	SubCategory	Services	Complaint Type	Complaint
State	Aden	Nature of Complaint	test		
Complaint Details	serves has a problem				
File(if any)	View File				
Final Status	Not Process Yet				
Action	Take Action View User Details				

Figure 4.7 : Complaint Details

4.3 Testing Phase

Testing phase is one of the processes that need to be done once the system development process is complete. Testing of the system is intended to test the functionality and identify any errors that may occur in the system operation. There are several tests done through the model testing and system testing. Model testing refers to the process of the testing that has been performed on the modules that have been developed in this system.

Login testing module will be considered as in Table 3, which focus on the testing for the user login and for the admin as well, following by the description for every module then the expected result which shows the result that is expected from the modules besides that the result whether it's successful or unsuccessful will be shown, as well as the percentage of the testing if it is 100% or less than 100% is measured.

Table 3: Login Testing Module

No	Test Cases	Description	Expected result	Result	100%
TEST_100					
1.	TEST_100_001	User needs to register for an account before login.	User can register for an account.	successful	100%
2.	TEST_100_002	User should log in to view the home page.	User can log in and view the home page.	successful	100%
3.	TEST_100_003	If the user forgets the password, he\she can change the password.	The user can change the password.	successful	100%
4.	TEST_100_004	User can see how many complaints is already done the process and how many still not process yet.	User can view the complaint status.	successful	100%
5.	TEST_100_005	User can add their info in the profile info.	User can add personal details.	successful	100%
6.	TEST_100_006	User can register the complaint.	User can easily register the complaint.	successful	100%
7.	TEST_100_007	User should view the complaint history.	User can view the complaint history.	successful	100%
8.	TEST_100_008	User should see the complaint details.	User can see all the complaint details.	successful	100%
9.	TEST_100_009	Admin should log in to view the home admin page.	Admin can view the home page after login.	successful	100%

Meanwhile in Table 4 shows the overall results testing on the 16 modules developed in this project. It is indicating that all the modules function successfully. Figure 4.8, it shows the overall result testing

which indicates that the whole 16 modules are successfully passed with a percentage of 100% which is can be summarized that the final result of the testing was excellent.

Table 4: Overall results for testing modules

No.	Module	Result	(%)
1	User registration	Successful	100%
2	User login	Successful	100%
3	User change password	Successful	100%
4	Users add their info	Successful	100%
5	User register complaint	Successful	100%
6	Users view the complaint history	Successful	100%
7	Admin login	Successful	100%
8	Admin change password	Successful	100%
9	Admin mange complaint	Successful	100%
10	Admin complaint details	Successful	100%
11	Admin take action	Successful	100%
12	Admin manage users	Successful	100%
13	Admin add category	Successful	100%
14	Admin add sub-category	Successful	100%
15	Admin add state	Successful	100%
16	Admin view user login logout	successful	100%

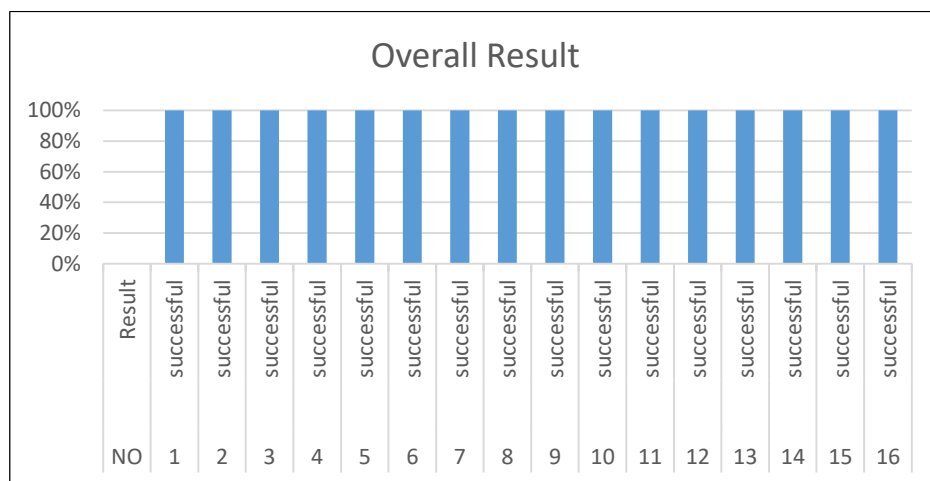


Figure 4.8 : Overall result

5. Conclusion

The student complaints management system is one of the most important projects. This project, it provided a design for student complaints management system. By implementing it, it finds that it provided an easy-to-use and flexible system that students could use anytime, anywhere. This system

will help the university to manage complaints and absorb them quickly and efficiently, and thus they can know the strengths and weaknesses in which they will solve complaints better and faster. The prototype helped design this program by engaging student input.

Acknowledgment

The authors would like to thank the Faculty of Computer Science and Information Technology, Universiti Tun Hussein Onn Malaysia for its support and encouragement throughout the process of conducting this study.

Appendix

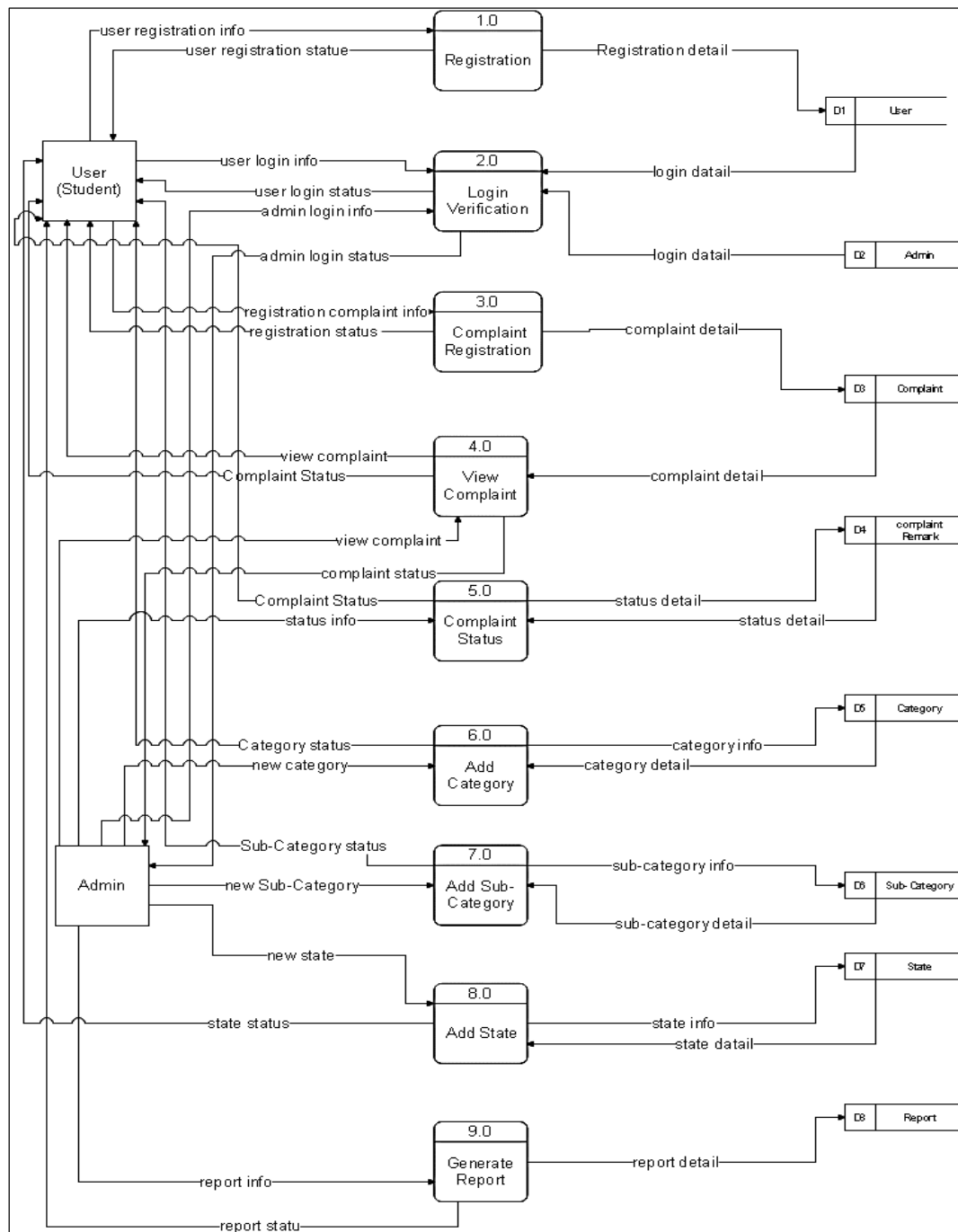


Figure A: Data Flow Diagram

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