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# **Software Requirements Specification**

**for**

## **NO DUE AUTOMATOR**

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# Table of Contents

<b>Table of Contents .....</b>	<b>ii</b>
<b>Revision History.....</b>	<b>ii</b>
<b>1. Introduction.....</b>	<b>1</b>
1.1 Purpose.....	1
1.2 Document Convention(s).....	1
1.3 Intended Audience and Reading Suggestions .....	1
1.4 Product Scope.....	1
1.5 References .....	2
<b>2. Overall Description.....</b>	<b>2</b>
2.1 Product Perspective.....	2
2.2 Product Functions.....	2
2.3 User Classes and Characteristics .....	2
2.4 Operating Environment .....	3
2.5 Design and Implementation Constraints.....	3
2.6 User Documentation .....	3
2.7 Assumptions and Dependencies .....	3
<b>3. External Interface Requirements.....</b>	<b>4</b>
3.1 User Interfaces .....	4
3.2 Hardware Interfaces.....	7
3.3 Software Interfaces .....	7
3.4 Communications Interface .....	7
<b>4. System Features .....</b>	<b>8</b>
4.1 Functional Requirements .....	8
4.2 Use Case: .....	9
<b>5. Other Nonfunctional Requirements .....</b>	<b>10</b>
5.1 Performance Requirements .....	10
5.2 Safety Requirements .....	10
5.3 Security Requirements .....	10
5.4 Software Quality Attributes.....	10
<b>Appendix A: Analysis Models .....</b>	<b>11</b>
• User Interface Diagram: .....	11

## Revision History

Name	Date	Reason For Changes	Version

# **1. Introduction**

## **1.1 Purpose**

To develop a mobile application for no due automating system within the department for passing out students.

## **1.2 Document Convention(s)**

NITC: National Institute of Technology Calicut

## **1.3 Intended Audience and Reading Suggestions**

- 1) Developers
- 2) Users – NITC students, Central Library, All the Departments. Hostel Office
- 3) Project coordinator

In this document section 1 is the Introduction, section -2 Overall description describes product perspective, features and operational environment. Section -3 External interface requirements describes about the user, hardware, software and communications interfaces. Section -4 System Features describes the functional requirements. Section -5 Other Nonfunctional Requirements describes the nonfunctional requirements like security, reliability, scalability etc.

## **1.4 Product Scope**

This software is intended for Pass out students of NITC so that they can get no dues from the departments, library and hostel. The main purpose of this software is to ease the process of getting no dues as it is generated automatically, students need not waste their time.

## 1.5 References

- IEEE. IEEE Std. 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998

## 2. Overall Description

### 2.1 Product Perspective

*This software is proposed replacement for the current no due procurement process by the pass out students of NITC where he/she has to take no due from all the departments, laboratories, library and Hostel Office.*

### 2.2 Product Functions

*The major functions of the product are*

- *Applying for No-Dues from required Departments*
- *Checking the status of application*
- *Checking pending No-dues requests*
- *Accepting/Rejecting pending requests to a department/Library/Hostel*

### 2.3 User Classes and Characteristics

*There are four types of users using this software of which Students play a major role. Each student using this software must be registered to either a full time or part time course in NITC and will be a pass out of that year anticipating no-dues clearance from each/some of the departments/labs/Central Library/Hostel office. Central Library staff, working in circulation section who are also responsible for No-Dues issue will be using this for issuing No-Dues to those students who have cleared all the Library Dues. Hostel Office Staff, who are responsible for record keeping the dues of students will be using this for issuing No-Dues for students who have cleared all Hostel/Mess dues. Finally All the department staff/ Laboratory staff will be checking their records for any pending dues before issuing No-Dues.*

## **2.4 Operating Environment**

*The Application will be working in Android Operating system version 5.0 and above. All devices that support this version of Android will be able to run the software.*

## **2.5 Design and Implementation Constraints**

- Users' device should have a working data plan or Wi-Fi Connection.
- The device should have enough storage to install and run the application.
- Database to be used is MySQL and queries should be in SQL.

## **2.6 User Documentation**

*A user documentation on how to use the software will be provided. Another documentation on setting up the server will also be provided.*

## **2.7 Assumptions and Dependencies**

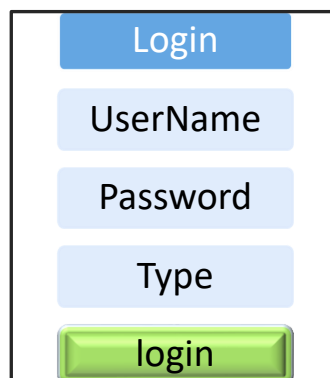
It has been assumed that we will be provided with a proper functioning server. The application shall be used with the assumption that the android API and licensing agreement remains the same.

### 3. External Interface Requirements

#### 3.1 User Interfaces

##### 3.1.1 Login:

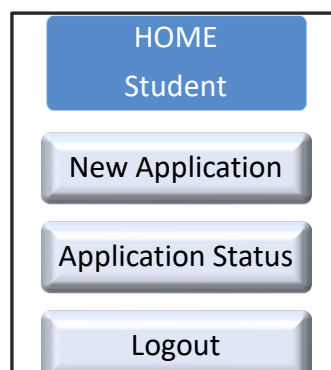
All the users should be able to login to the applications using the pre-assigned username and password and selecting user category before clicking on login button on the screen.



A vertical stack of five rectangular buttons within a black border. From top to bottom: a blue button labeled 'Login', a light blue button labeled 'UserName', a light blue button labeled 'Password', a light blue button labeled 'Type', and a green button labeled 'login'.

##### 3.1.2 Student Home:

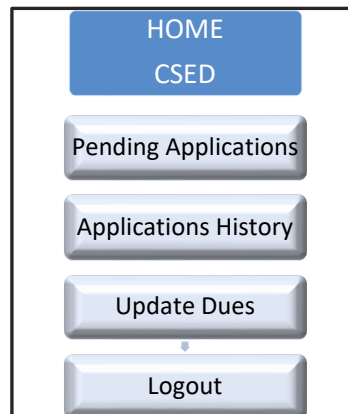
After logging in, each student must be redirected to a home page which contains options for user to either apply for No-Dues or Check the status of pending applications. Along with them there will be an option to check the notifications.



A vertical stack of four rectangular buttons within a black border. From top to bottom: a blue button labeled 'HOME' and 'Student', a light blue button labeled 'New Application', a light blue button labeled 'Application Status', and a light blue button labeled 'Logout'.

### 3.1.3 Department Home:

Department/ Central Library / Hostel Office staff will be redirected to their home page through which they can see all the pending requests and accept/ reject them.



### 3.1.4 Apply for No-Dues

For application of No-Dues, Student should select the departments from which he needs No-Dues from a list of all departments and sections.



### 3.1.5 Check Status

Student can track the status of his/her application where he can see three status values viz. Approved, Rejected or Pending.

Department	Status
CSE	Approved
Hostel Office	Rejected
Central Library	Pending

OK

### 3.1.6 Pending Applications

Department Staff can check the list of students who have applied for No-Dues from that department. They can verify the profile of the student and either Approve/Reject the application.

Pending Applications
B150531CS
B150805CS
B150681EC
-----

→

Student Profile
ROLL NO
Name
Department
-----
-----
Approve
Reject
Cancel



### 3.2 Hardware Interfaces

This will be an Android phone application, and as such will be designed to interface with the hardware present on the Android phone. In theory the application will be able to run by other devices that can emulate the Android, but this will not be a consideration during design.

As this is a mobile device, it will be using the Android network to connect to the internet, which will allow it to communicate with the database servers. This means that it will be using the infrastructure, be it wireless communication points or physical lines, of the network in order to perform properly. There will have to be some sort of error checking for if the network is down or inaccessible.

### 3.3 Software Interfaces

This product will be connecting remotely to a MySQL database that will be set up in a server. The operating system the software runs on will be the operating system the Android phone runs on, which comes with a software framework that will be utilized, including many prepackaged components to do things like create menus, hookup buttons, and other common functions expected of a mobile device. The only communication will be between the phone and the server housing the database, which will be sending queries or updates and receiving the information back.

### 3.4 Communications Interface

This will be an Android application. As described above, this will be communicating with a database server, and so will be making use of the Android network and HTTP in order to communicate. *There will be email communication too, sending notifications regarding status of the application.* The primary forms of communication will be database transactions or requests. The application will need to be synchronized to a certain extent with the other users, so that the information displayed to the user is always up to date.

## **4. System Features**

### **4.1 Functional Requirements**

#### **Student:**

- Students passed out from NITC can apply for NODUES from the departments, Laboratories, Library and Hostel Office.
- They can check their status after applying.
- An email notification will be sent to the registered email id of the student upon successful generation of NODUES.
- If he has Dues in any of the above mentioned an email alert will be sent stating that he has due in the respective department/library/laboratory.
- Students can initially login using their NITC ROLLNO as username and password and later they can change their password if required.
- NODUES can be generated after the approval of all the departments, laboratories, Library and Hostel Office in their mobile application or it can be sent through email as per our convenience.

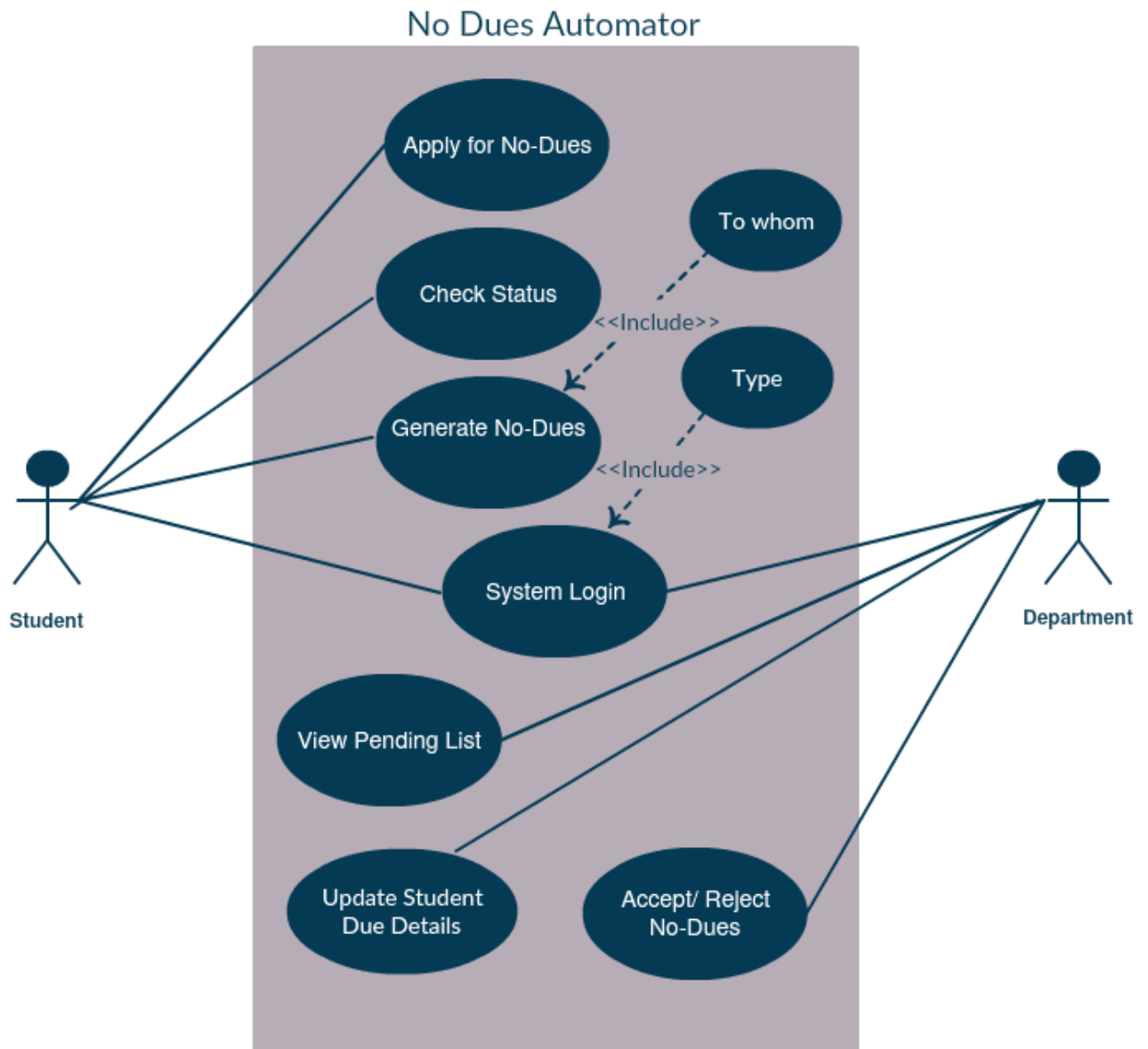
#### **Departments/Laboratories/Library/Hostel Office:**

- When a student applies for NODUES his ROLLNO will be added to the list of pending applicants.
- The department can see his details and shows if he has any dues.
- They can periodically update the database if a student has due while he is studying or if he clears the dues so that when the student applies for NODUES it will be easy as it is already recorded and there will not be any need to recheck.
- Department can accept or reject the application for NODUES of a student.

#### **ADMIN:**

- Creates the initial Logins for all the users.

## 4.2 Use Case:



## 5. Other Nonfunctional Requirements

### 5.1 Performance Requirements

The primary performance requirement is speed of the network. While there should not be that much information flowing across during a brainstorming session, if the time limit of the session is short, the user can experience the best from the application. The application itself will only have minimal logic and so there should be little to no issues with the computation required by the phone itself.

### 5.2 Safety Requirements

There are no safety requirements with this application, other than any normal hazards of a mobile device. The only hazard is a user using the device when they should not be, such as while driving.

### 5.3 Security Requirements

The application must be able to link up with the RIT LDAP system in order for users to properly log in and be identified. Security is a serious issue in this application since No-Dues certificate should be issued only by the department it is requested for, or else there is a high chance of people with dues getting No-Dues by unauthorized people. All user input shall be cleaned to prevent security issues. This will ensure any malicious entries will not harm the system.

### 5.4 Software Quality Attributes

*The primary attributes of this application will be dependability and scalability.* Because this application will be on a phone, portability is also important. We don't want it to take up so much space or be too slow causing the user's to not be able to fit it on the device. The Android device is being used because both of its popularity and hence it could be used by almost all the students and departments of NITC.

## Appendix A: Analysis Models

- User Interface Diagram:

