

# Residence Management System (RMS)

## **INTRODUCTION**

The University of Tshwane University Of Technology (TUT) has decided that by the year 2020, the entire student application for accredited accommodation and accommodation registration should be done online. This vision implies that the student accommodation system should be computerized and possibly become online based.

The Residence Management System (RMS) is introduced as a computerized system to ease the pressure on students and administrators. The new residence application system will help to eliminate the paper-based applications thereby speed up processing as details will be captured in the database. This will help eliminate delays caused by sequential checking of each residence for the availability of rooms.

## **PROBLEM STATEMENT**

The current accommodation application process involves students to fill a paper-based application which takes a long time to process. Presently, students must check their residence application status at the residence administrator's office. Since the new system to be adopted is computerized, it will automatically send notifications to success and unsuccessful applicants through email.

The system will check automatically for the available rooms to help accelerate the room allocation process thus making it painless for the residence managers to allocate rooms for students.

The current means of application prevents student from viewing and choosing the property of their choice. Also, the only available means of complaining, suggesting or requesting information is through verbal means which can be a load on certain students who are shy.

## **FUNCTIONAL REQUIREMENT**

- The system should allow the super admin to approve the property for accredited
- The super admin should be able to verify the landlord documents
- The landlord should receive email of approval
- The system should only give access to tut registered student
- It should allow the students to cancel the application
- The system should allow the landlord to register multiple properties
- The system should allow the super admin to view the property profile
- Landlord will be able to add res admin for his/her other properties
- The res admin should be able to view and manage a property
- It should allow student to transfer from one room to another as well as one property to another
- The res admin should be able to view and update the list of occupied rooms
- It should allow the res admin to allocate rooms
- The system should be able to update information on properties
- The system should be able to inject the res admin and the landlord into the system

## **NON FUNCTIONAL REQUIREMENTS**

- Reliability –system should meet users requirements
- Accessibility –registered users should access the system anytime at any place
- Backup – data should be stored elsewhere for backup
- Usability –the user should be able to apply online
- Security – user should first register before using the system and also be assured that their personal information will be protected at all cost.
- Performance – the website should be able to handle many users without the system going slow
- Data integrity – system should assure that every application is saved
- Scalability – the system allow future upgrades
- Error handling – website should be able to bounce back after error
- Capacity –large number of users should be able to use the system simultaneously
- Availability – website must be accessed after entering an URL
- Simplicity – the system should be user friendly

## **RECOMMENDATIONS**

The RMS system consists of four actors with different levels of privileges, respectively. It will be the Super admin, the landlord, the res admin and students. Students must access the system at anytime and anywhere to enable them to apply, check the residences, choose a room, lodge complaints, change rooms and/or residences. The Super admin controls the whole system, and approve the buildings and landlords and he will able to see and maintain the whole database. Landlord will submit documents and wait for approval, once approved landlord will upload pictures of their property and assign a res admin if he/she own more than one property.

The res admins have privileges to manage a property, they are able to allocate rooms, register and cancel students, and also receive and address complaints and suggestions

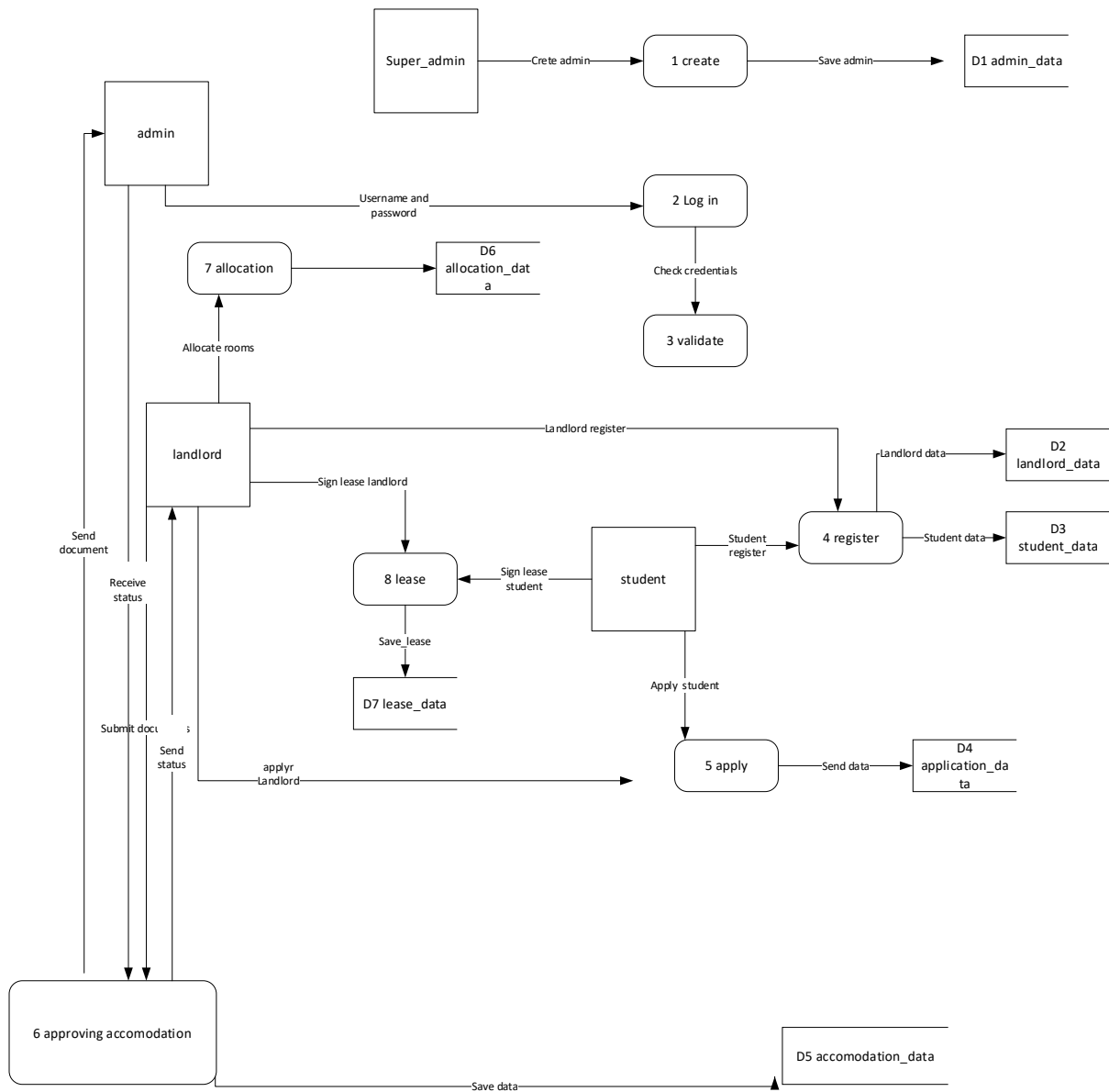
## **SWOT ANALYSIS**

<b>STRENGTHS</b> <ul style="list-style-type: none"><li>• The system will enable students to apply for residence</li><li>• The system will enable potential landlord to apply for accredited accommodation</li><li>• It will allow student to select property online which they want to apply for</li><li>• Will reduce paper trail</li><li>• Saves time when applying for accommodation through the system</li></ul>	<b>WEAKNESSES</b> <ul style="list-style-type: none"><li>• Possibility of receiving faded documents</li><li>• Landlords can manage only one of their properties</li><li>• The system can approve students who have NSFAS</li></ul>
<b>OPPORTUNITIES</b> <ul style="list-style-type: none"><li>• Reservations can be done online</li><li>• Students will be able to view properties online</li><li>• Suggestions and complaints can be done online</li><li>• Potential landlords can apply to have more than one property accredited</li></ul>	<b>THREATS</b> <ul style="list-style-type: none"><li>• The system might not be user friendly to elders due to technological illiteracy</li><li>• Landlords might not trust the system and see it as fraud</li></ul>

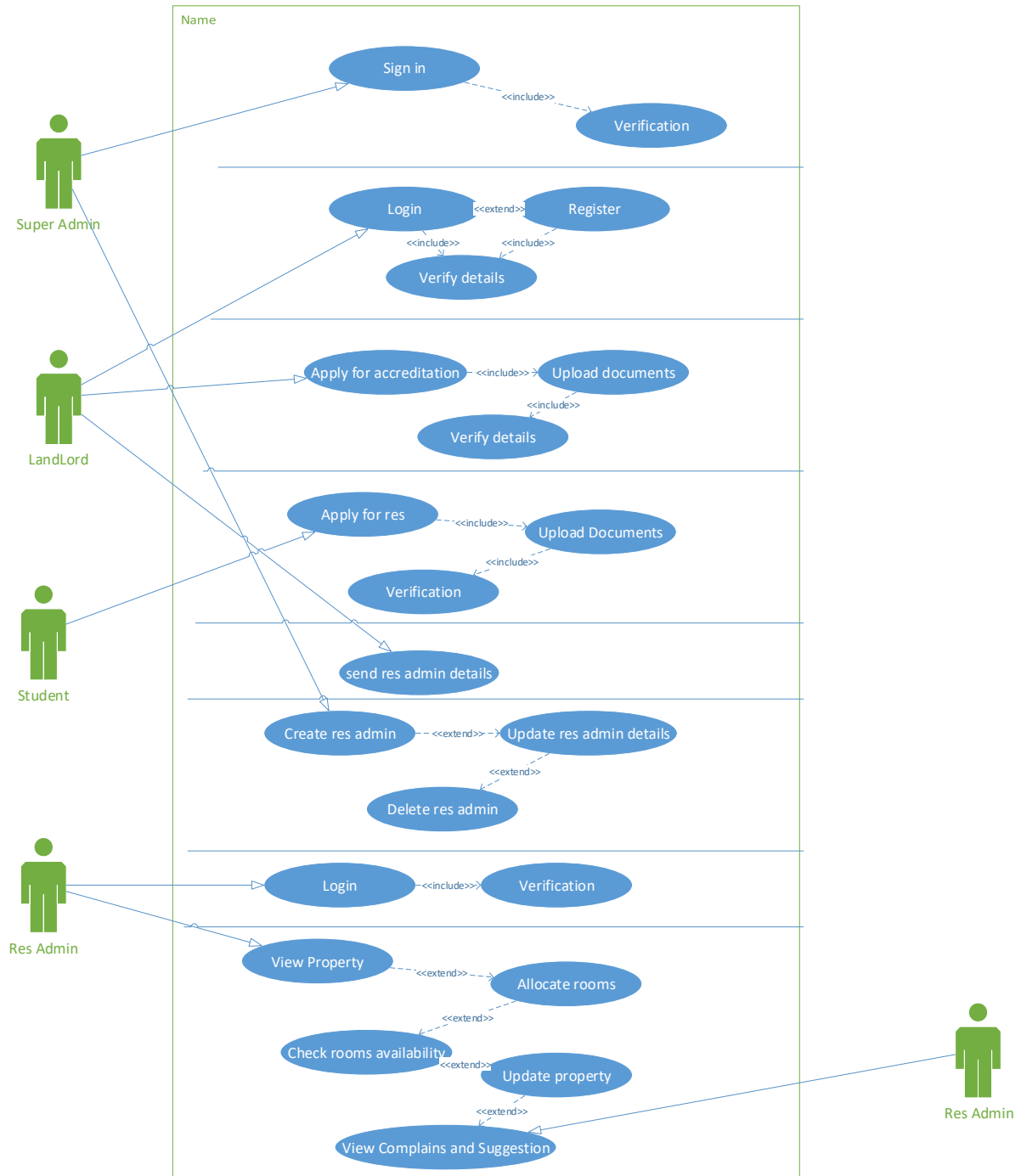
### SWOT/PEST ANALYSIS

SWOT/PEST	STRENGTHS	WEAKNESS	OPPORTUNITIES	THREATS
<b>POLITICAL ASPECT(P)</b>	RMS will help in addressing corruption towards students where rules and regulations are not followed by the people in charge of admitting students to accredited residences.	The people in charge may still be able to accredit buildings that do not the requirements to be accredited.	The system may attract other universities and future upgrades may be required.	The constant decline in the state of our economy could negatively impact the cost of implementing the system.
<b>ECONOMIC ASPECT (E)</b>	The system will reduce costs and time incurred through administration	The system may be expensive to implement.	The RMS system will empower people economically when they have their buildings accredited.	The system may reduce employment by a significant number.
<b>SOCIAL ASPECT (S)</b>	RMS will be the best solution to student's residence management problems as it will provide easy online application, so that students may apply from home or anywhere else through the mobile application.	Students and potential landlords who are technology illiterate may have problems with accessing the system or using the system.	The system may attract other universities as it addresses and aims to upgrade the current state of university residence applications.	People are often sceptical about putting their personal information on a new system that hasn't been proven to be secure.
<b>TECHNOLOGICAL ASPECT (T)</b>	RMS will improve the traditional administration methods from paperwork to system based.	The shortage of internet and machines will contain problems	It might be adapted to be used in other activities	Data for internet access is expensive and may prevent students from downloading and accessing the application

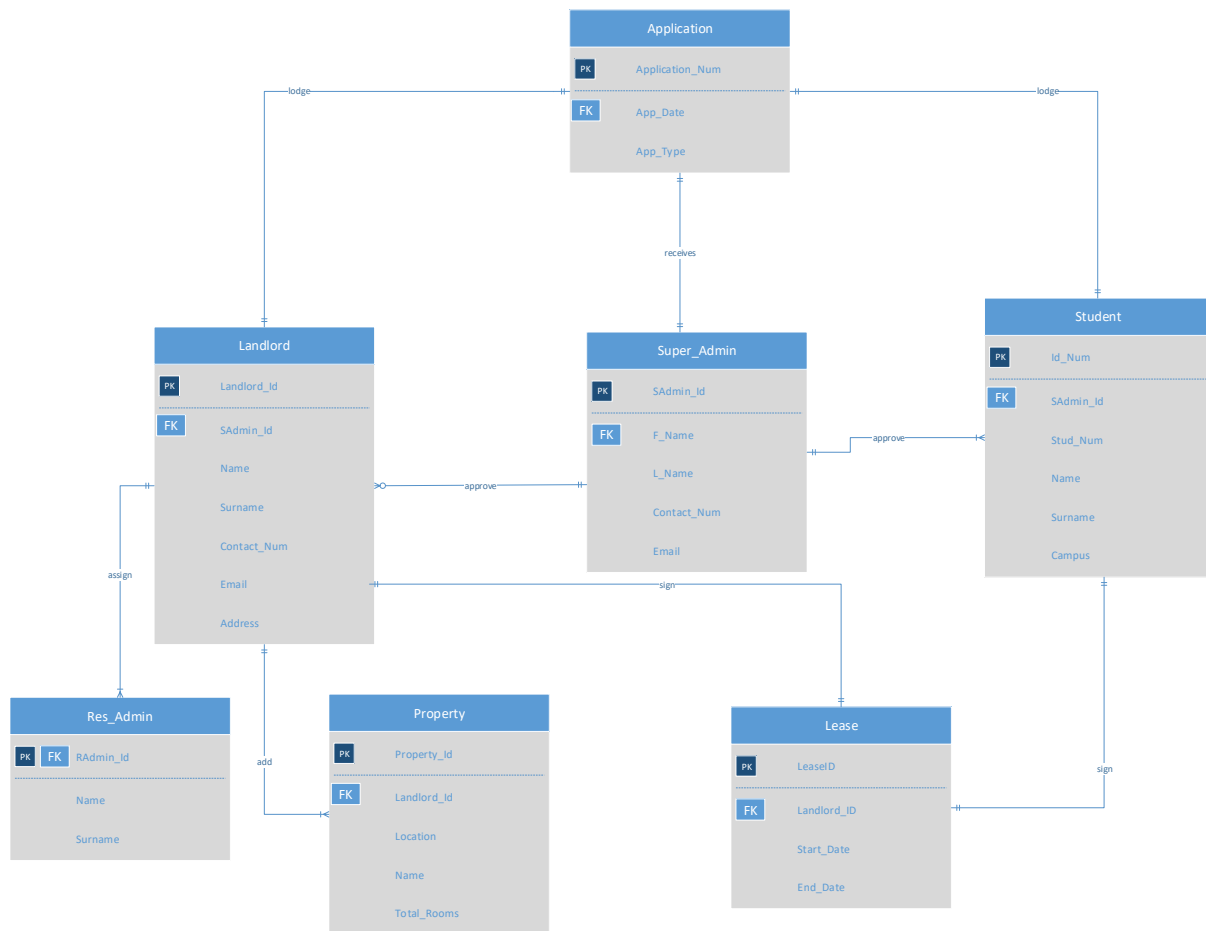
## DFD



## USE CASE



## ERD



## USER STORY

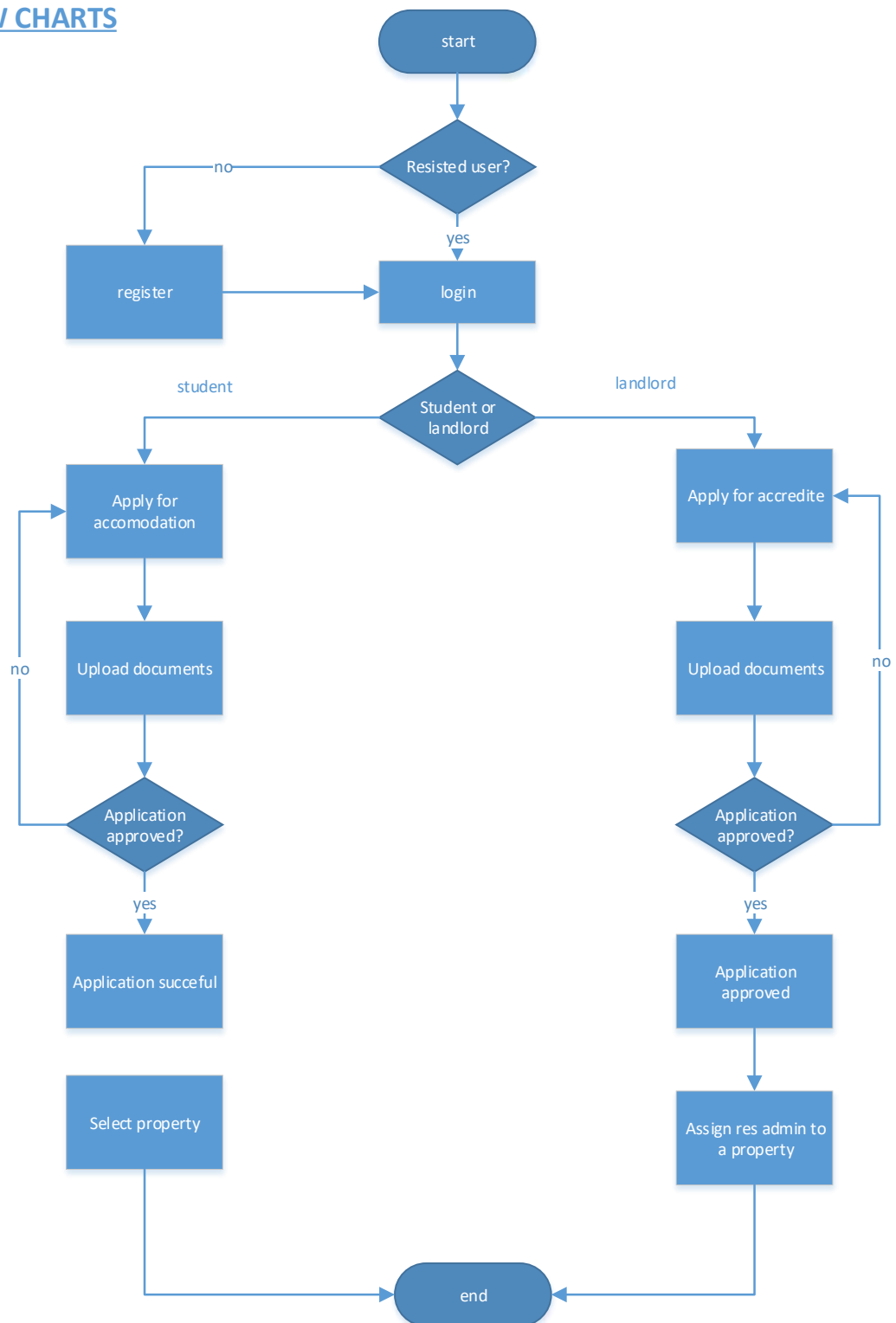
User Story ID	As a type of User	I want to	So that I can
S_Admin_01	Super_Admin	Sign into the system	Be able to have access to the system
S_Admin_01	Super_Admin	view a property	Manage property
S_Admin_01	Super_Admin	View the documents	Approve the property
S_Admn_01	Super_Admin	Check the documents	approve the landlord application
S_Admn_01	Super_Admin	Checks the student application documents	Approve student
R_Admn_01	Res_Admin	Sign into the system	Be able to manage the property
R_Admn_01	Res_Admin	Login to the system	Check available rooms
R_admin_01	Res_Admin	View complaints	Address them
R_Admn_01	Res_Admin	View property	Allocate rooms
Landlord_01	Landlord	Send application on the system	Be able to supply students with accommodation
Landlord_01	Landlord	Register on the system	Validate credentials
Landlord_01	Landlord	Allocate rooms to student	To ensure a student get a room
Stud_01	Student	Register on the system	Get access to the system
Stud_01	Student	Apply for accommodation	Get accommodation
Stud_01	Student	Select accommodation	Get a property of my choice



**DATA DICTIONARY**

Table Name	Attribute name	Contents	Type	Format	Required	PK OR FK	FK referenced table
Super admin	SAdmin_id	Super admin id	Number(13)	99999999999999	Y	PK	
	FName	First Name	Varchar2(22)	Xxxxxxxxxxxxxx	Y		
	LName	Last name	Varchar2(22)	Xxxxxxxxxxxxxx			
	Contact_num	Phone number	Number(10)	9999999999	Y		
	Email	Email address	Varchar2(12)	Xxxxxxxxxxxx	Y		
Res_admin	RAdmin id	Res admin id	Number(13)	99999999999999	Y	PK	
	Name	Name	Varchar2(22)	Xxxxxxxxxxxxxx	Y		
	Surname	Surname	Varchar2(22)	Xxxxxxxxxxxxxx	Y		
Landlord	Landlord_id	Landlord id	Number(13)	99999999999999	Y	PK	
	Name	Name	Varchar2(22)	Xxxxxxxxxxxxxx	Y		
	Surname	Surname	Varchar2(22)	Xxxxxxxxxxxxxx	Y		
	Contact_num	Phone number	Number(10)	9999999999	Y		
	Email	Email address	Varchar2(12)	Xxxxxxxxxxxx	Y		
	Address	Physical address	Varchar2(23)	Xxxxxxxxxxxxxx	Y		
	SAdmin_id	Super admin id	Number(13)	99999999999999	Y		
Student	Id_num	Student id	Number(13)	99999999999999	Y	PK	
	Stud_num	Student number	NUMBER(9)	999999999			
	Name	Name	Varchar2(22)	Xxxxxxxxxxxxxx	Y		
	Surname	Surname	Varchar2(22)	Xxxxxxxxxxxxxx	Y		
	Campus	Campus name	Varchar2(30)	Xxxxxxxxxxxxxx	Y		
	SAdmin	Super admin id	Number(13)	99999999999999	Y	FK	SUPER ADMIN
Application	Application_num	Application number	Number(4)	9999	Y	PK	
	Application_date	Application date	Date		Y		
	Application type	Application type	Varchar2(10)	Xxxxxxxx	Y		
Property	Propert_id	Property id	Number(5)	99999	Y	PK	
	Landlord_Id	Landlord ID number	Number(13)	99999999999999	Y	FK	LANDLORD
	Name	Property name	Varchar2(22)	Xxxxxxxxxxxxxxxx	Y		
	location	Property location	Varchar2(30)	Xxxxxxxxxxxxxxxx	Y		
	Total_rooms	Number of rooms	Number(4)	9999	Y		
Lease	Lease_id	Lease id	Number(2)	999	Y	PK	
	Start_date	Start Date	Date		Y		
	End_date	End date	Date		Y		
	Landlord_id	Landlord id	Number(13)	99999999999999	Y	FK	LANDLORD

FLOW CHARTS



## CONCLUSION

The residence management system it will be the best solution to residence management as it will provide an online application to students. The online system will also provide a quick and reliable application process hence reducing the load of work done by the student calling the landlord asking whether there's space or not, and it will be saving time for students who apply.

