**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 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 FUCTIONAL 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**

|  |  |
| --- | --- |
| **STRENGTHS**   * The system will enable students to apply for residence * The system will enable potential landlord to apply for accredited accommodation * It will allow student to select property online which they what to apply for * Will reduce paper trail * Saves time when applying for accommodation through the system | **WEAKNESES**   * Possibility of receiving faded documents * Landlords can manage only one of their properties * The system can approve students who have NSFAS |
| **OPPORTUNITIES**   * Reservations can be done online * Students will be able to views properties online * Suggestions and complaints can be done online * Potential landlords can apply to have more than one property accredited | **THREATS**   * The system might not be user friendly to elders due to technological illiteracy * Landlords might not trust the system and see it as fraud |

**SWOT/PEST ANALYSIS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SWOT/PEST** | **STRENGTHS** | **WEAKNESS** | **OPPORTUNITIES** | **THREATS** |
| **POLITICAL ASPECT(P)** | 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. |
| **ECONOMIC ASPECT (E)** | 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. |
| **SOCIAL ASPECT (S)** | 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. |
| **TECHNOLOGICAL ASPECT (T)** | 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) | 9999999999999 | Y | PK |  |
|  | FName | First Name | Varchar2(22) | Xxxxxxxxxxxxx | Y |  |  |
|  | LName | Last name | Varchar2(22) | Xxxxxxxxxxxxx |  |  |  |
|  | Contact\_num | Phone number | Number(10) | 9999999999 | Y |  |  |
|  | Email | Email address | Varchar2(12) | Xxxxxxxxxxx | Y |  |  |
| Res\_admin | RAdmin id | Res admin id | Number(13) | 9999999999999 | Y | PK |  |
|  | Name | Name | Varchar2(22) | Xxxxxxxxxxxxx | Y |  |  |
|  | Surname | Surname | Varchar2(22) | Xxxxxxxxxxxxx | Y |  |  |
| Landlord | Landlord\_id | Landlord id | Number(13) | 9999999999999 | Y | PK |  |
|  | Name | Name | Varchar2(22) | Xxxxxxxxxxxxx | Y |  |  |
|  | Surname | Surname | Varchar2(22) | Xxxxxxxxxxxxx | Y |  |  |
|  | Contact\_num | Phone number | Number(10) | 9999999999 | Y |  |  |
|  | Email | Email address | Varchar2(12) | Xxxxxxxxxx | Y |  |  |
|  | Address | Physical address | Varchar2(23) | Xxxxxxxxxxxxxx | Y |  |  |
|  | SAdmin\_id | Super admin id | Number(13) | 999999999999 | Y |  |  |
| Student | Id\_num | Student id | Number(13) | 999999999999 | Y | PK |  |
|  | Stud\_num | Student number | NUMBER(9) | 999999999 |  |  |  |
|  | Name | Name | Varchar2(22) | Xxxxxxxxxxxxx | Y |  |  |
|  | Surname | Surname | Varchar2(22) | Xxxxxxxxxxxxx | Y |  |  |
|  | Campus | Campus name | Varchar2(30) | Xxxxxxxxxxxxx | Y |  |  |
|  | SAdmin | Super admin id | Number(13) | 9999999999999 | 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) | Xxxxxxxxx | Y |  |  |
| Property | Propert\_id | Property id | Number(5) | 99999 | Y | PK |  |
|  | Landlord\_Id | Landlord ID number | Number(13) | 9999999999999 | Y | FK | LANDLORD |
|  | Name | Property name | Varchar2(22) | Xxxxxxxxxxxxxxx | 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) | 99999999999 | Y | FK | LANDLORD |



**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.

A screenshot of a cell phone

Description automatically generated