

Information System: Abroad Guide for Students

(Project for Systems III)

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Definition of the Problem

In the world, many students go abroad with opportunities like Erasmus+. But they don't know anything about the country they are going.

Every school doesn't offer staying place in student dormitories for every student. Lack of information about this can make student cancel the Erasmus programme. But information system that will help people to students will help about the accommodation. It will show links and websites to find available accommodations.

People who are not coming from EU countries have another problem: Mobile operator.

There is something called Roaming which allows you to use internet/call in other countries but it's really expensive for people who are not coming from EU. So, people need to buy SIM card. Also, it's not just that. Some countries don't allow to use a SIM card without tax number. To get tax number, first you need to take an appointment from Administrative Unit. And submit so many papers to get this number. Application also will help people to learn information about these problems.

Another problem is Transportation.

In the world, there are some countries that you cannot get on the bus without bus-card. They don't allow you to use coins. So, you need to buy a bus card. Also, to use student discounts you may need to take an appointment in somewhere to buy this card. In a country that you are first time in, it might be difficult to find place to buy a student card.

Also you may want to learn bus hours, taxi hours, bus itinerary, bus stops, loading money on the card online. So application will have a link for other bus guide applications.

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Functional Requirements

Such a system should allow its users the following functionalities:

1. The system should display information within it.
It should be able to list all shared information and switch on the menu for different categories.
2. Since functionalities are limited to registered users, the system needs to allow users to create an account or log into an existing one. Mandatory information is required in order to register. These are:
id, password, name surname and user role (informer or informee).
3. The system should allow to users (who has «informer» type role) to share information topics which they write to guide people about their knowledge.
4. The informee type user needs to be able to view all information shared on application and read them.
5. The informer type user needs to be able to remove all information they shared.
6. The system allows logged in users to log out from their account.
7. The system should allow informer users to put photo to info (with the help of photo URL actually). Users should also have a way of lend assistance people with the help of photographs and pictures.
8. Only registered users can share URL and create something on the website.
9. Unregistered people cannot see the information on application. Users have to register.
10. The system should have a menu that users can see and switch between different categories.

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Nonfunctional Requirements

Such a system should allow its users the following non-functionalities:

1. Usability → The user interface is designed to be intuitive and highly accessible to all its users. Information on the main page should be visible at a click of a button taking priority on the screen. The menu interface allows the switching categories and displayed in real-time and it's accessible to all users.
Also, the system should have a documentation for how to use the application.
2. Security → The system deals with personal information provided by the user upon registration hence all data should be encrypted. When user creates an account, the system encrypts the password with md5 hash function.
3. Availability → The system must ensure 24/7 operation with an uptime over %95.
4. Performance → The system should initially be able to process 5000 entries per minute. The number of entries the system should be able to process in a minute depends on the number of it has. Each request has to be processed in under 20 seconds. The system's performance should be fast enough to show users the information.
5. Compatibility → The system should be packaged as a mobile application.
6. Portability → The application should be portable. All Android phones/tablets that have Android 7.0+ should able to install application.
7. Maintainability → In case of an error occurrence, the system should have a 90% maintainability for 24 hours.
8. Localization → The system is developed for people all over the world, and English is a global language. Therefore, application and information need to be in English.
9. Privacy → The system shouldn't sell personal information of users because of privacy reasons.
10. Data Integrity → The information that uploaded by informants should be about guiding.

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FEASIBILITY STUDY

My information system project is about abroad guide for students. From a technical point of view, the hardest part is going to be user system. Because some users will register, login and write information on the system. And these need to be registered in some place. So we need integration of the system with external systems. And I am going to use some free API's so it's not gonna be a problem.

Also I am going to use Android studio make the GUI(Graphical User Interface), and it's not going to be a problem because I already have experience with making graphical user interface with Android Studio.

For the security issues; the passwords will gonna saved with AES encryption, which is trusted standard algorithm used even by United States of America government.

Also, the data is not going to go outside of EU. So for laws, it's feasible.

From a economic point of view, it might be challenging but I am going go to use free frameworks, free designs, free applications. For database I am going to use the cheapest database system. So economically it's not a problem.

The solution is going to be acceptable for social organizations because it is purely for helping people. The information system doesn't have financial purpose.

LOGICAL DESIGN

Matrix User Role / Functions

Table 1: Matrix user role/functions

Functions	Informee	Informer
Share information	No	Yes
Remove information	No	Yes
Read information	Yes	Yes
Edit information	No	No

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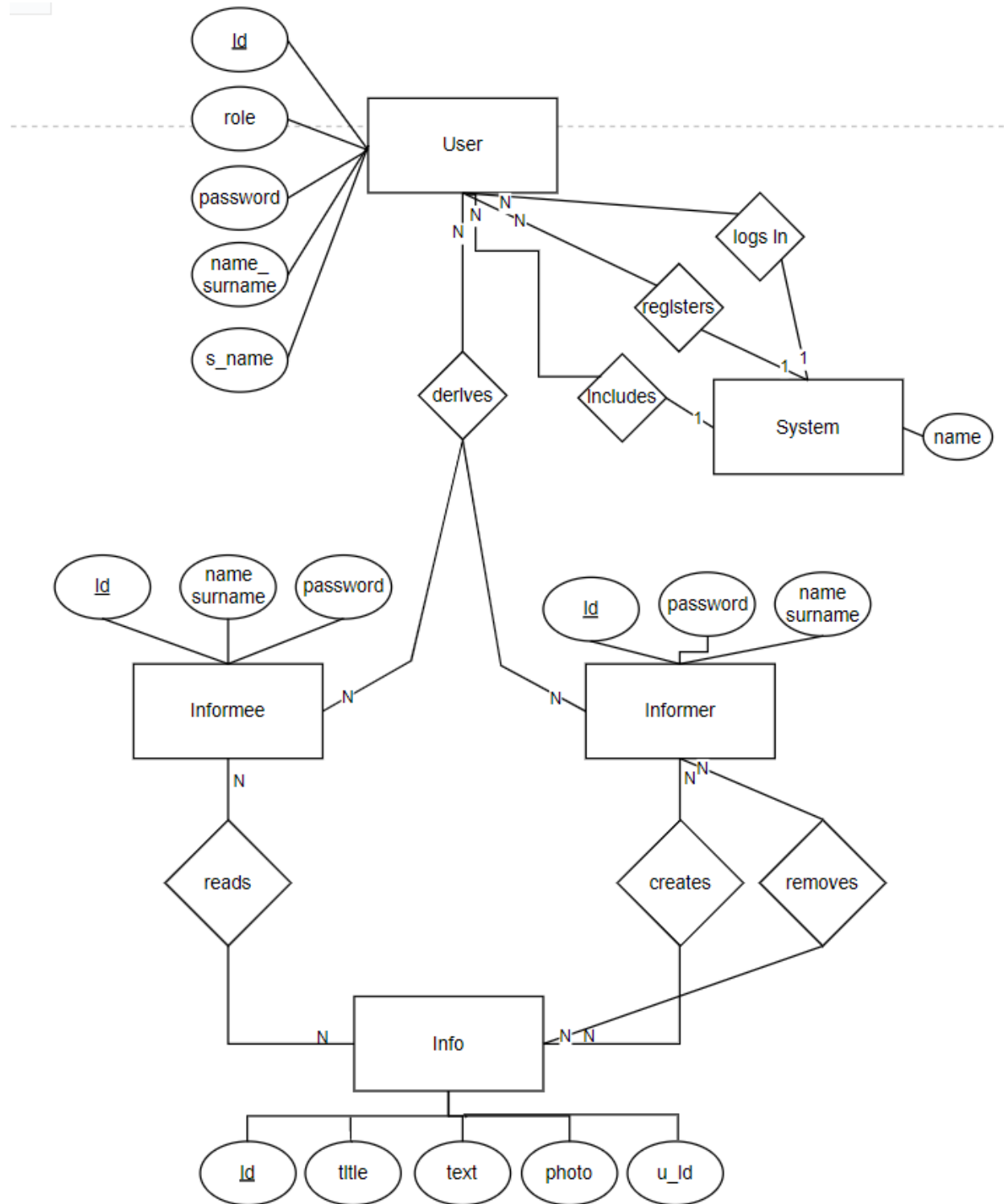
Data Dictionary

Table 2: Data Dictionary

Entity	Description	Attribute	Type	Description of Attribute
Informee	Person who is informed	Id	int	Identifying the user when registering and logging.
		name_surname	varchar(255)	Personal info of user about name.
		Password	varchar(255)	Password of user.
Informer	Person who gives info	Id	int	Identifying the user when registering and logging.
		name_surname	varchar(255)	Personal info of user about name.
		Password	varchar(255)	Password of user.
Info	The data will be shared	Text	varchar(10000)	The data going to be shared.
		Id	Int	Identify text that will be stored on database.
		Title	Varchar(255)	Title of info
		Photo	varchar(1000)	The link of the picture about information(will be stored as website link (string))
		U_id	Int	Id of informer user who shares it.
System	set of things working together to connect	Name	varchar(255)	Name of the system.
User	Person who uses the system	Id	Int	Identifier of person who uses system
		role	varchar(255)	Type of the user (Informee or informer)
		Name_surname	varchar(255)	Personal info of user about name.
		Password	varchar(255)	Password of user
		S_name	varchar(255)	Name of system

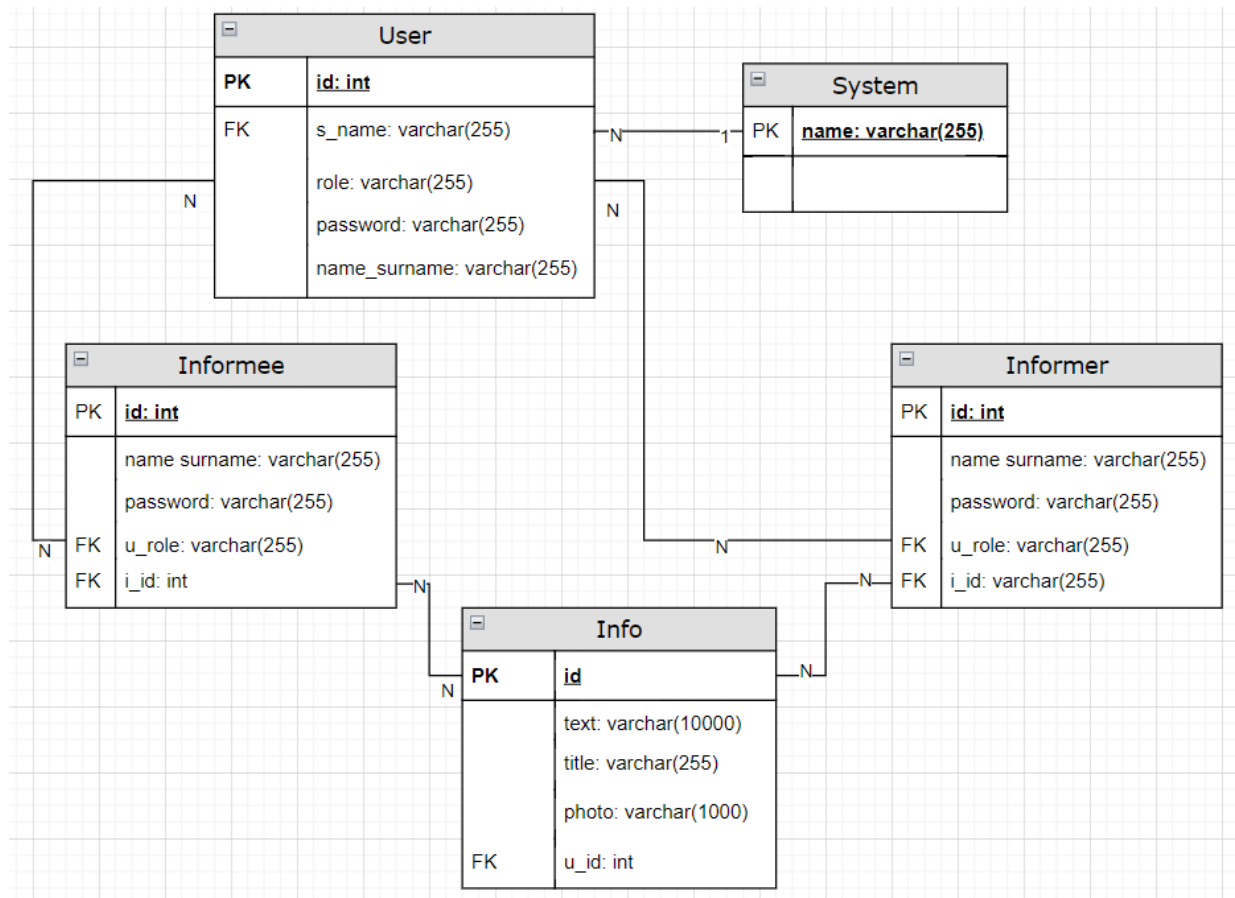
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ENTITY RELATIONAL DIAGRAM

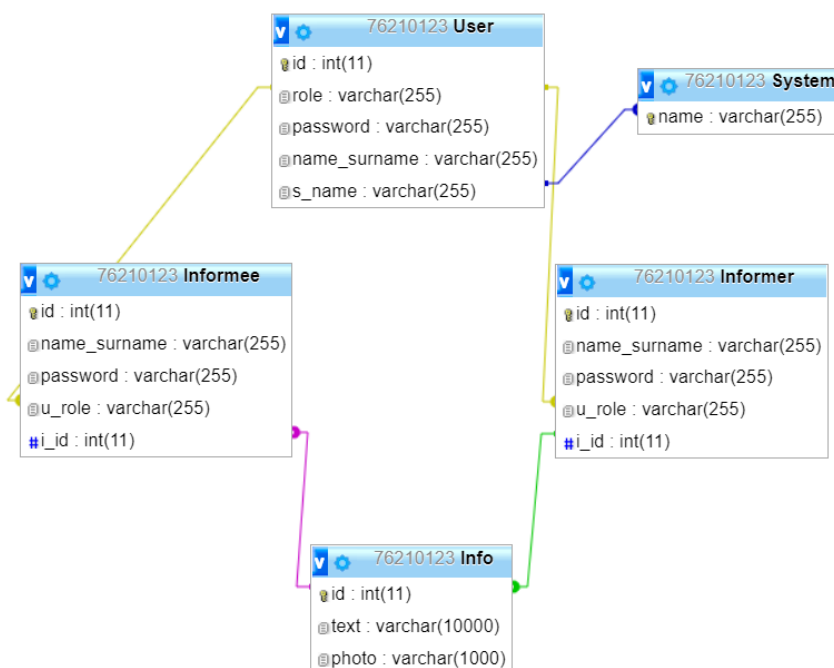


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RELATIONAL MODEL

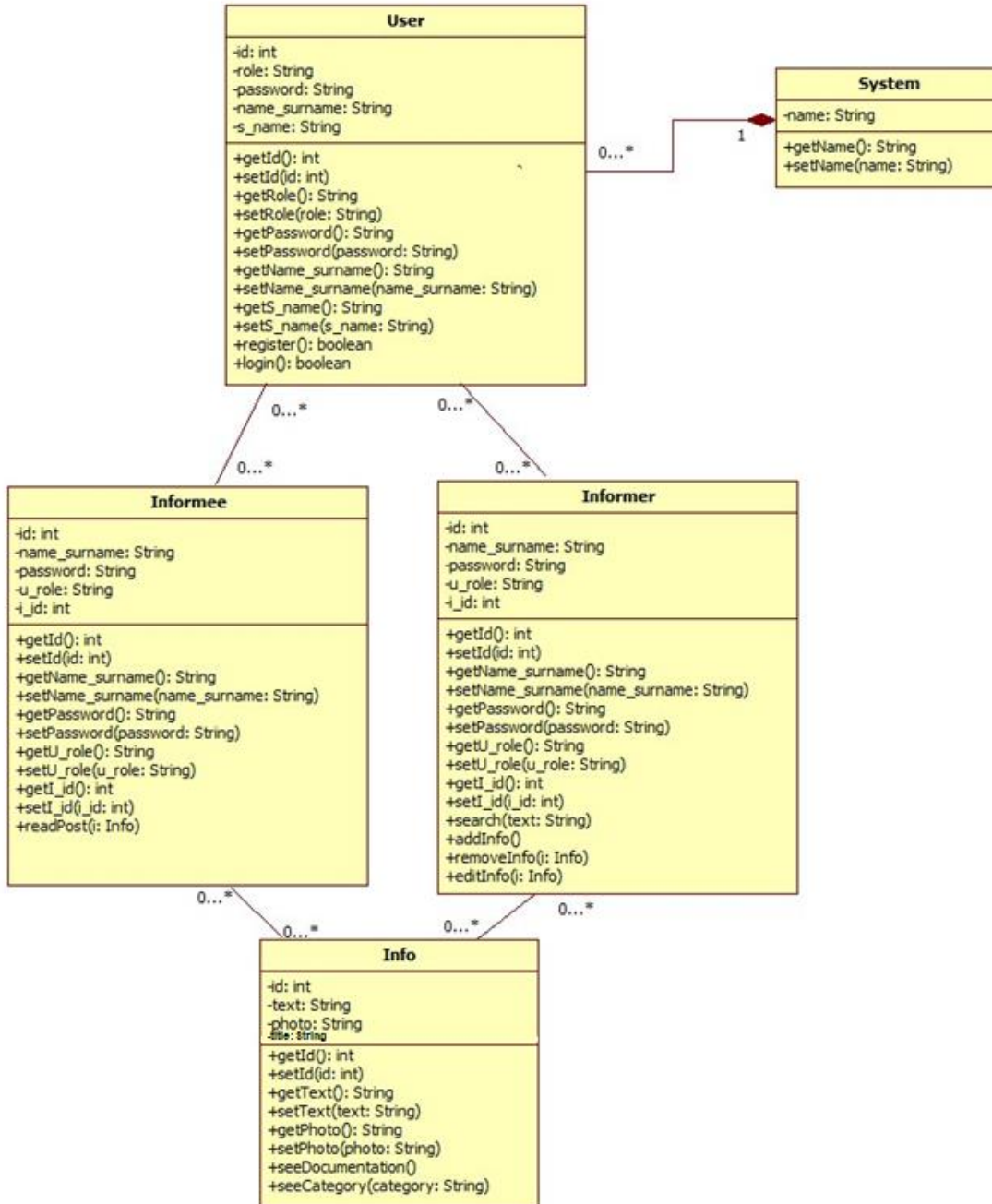


PHSICAL MODEL



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UML CLASS DIAGRAM



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SEQUENCE DIAGRAM

