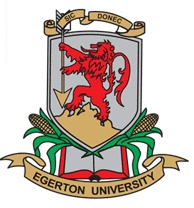
**EGERTON UNIVERSITY**



**SYSTEM DESIGN**

**DOCUMENT**

**FOR**

**EGERTON UNIVERSITY TRANSPORT**

**MANAGEMENT SYSTEM**

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**REG NO: S13/21403/14**

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**VERSION 1.0**

***OVERVIEW***

**TABLE OF CONTENTS**

**1 INTRODUCTION**

* 1. **Purpose and Scope**

This software design document describes the architecture and system design of Egerton University Transport Management System(EUTMS)

This document contains a complete description of the design and architecture of the EUTMS. The basic architecture is a web based application that users will access the system through the web. The description of the architecture and design will mainly be on the:

* Login and registration process
* Booking process
* Database architecture
* Inventory, vehicle and driver management process
  1. **Project Executive Summary**
     1. **System Overview**

EUTMS is responsible for managing most if not all activities done by the transport department of the university. Departments will make booking which will be viewed by the administration in the transport department and can be accepted or denied. Drivers, vehicles and inventory information will also be entered into the system and stored in a database and a report of them generated by the system. There will be schedule that will be generated by the system of confirmed or accepted bookings

For this to be done by the system, the system architecture below will be used in the different modules such as the login and registration module

Browser

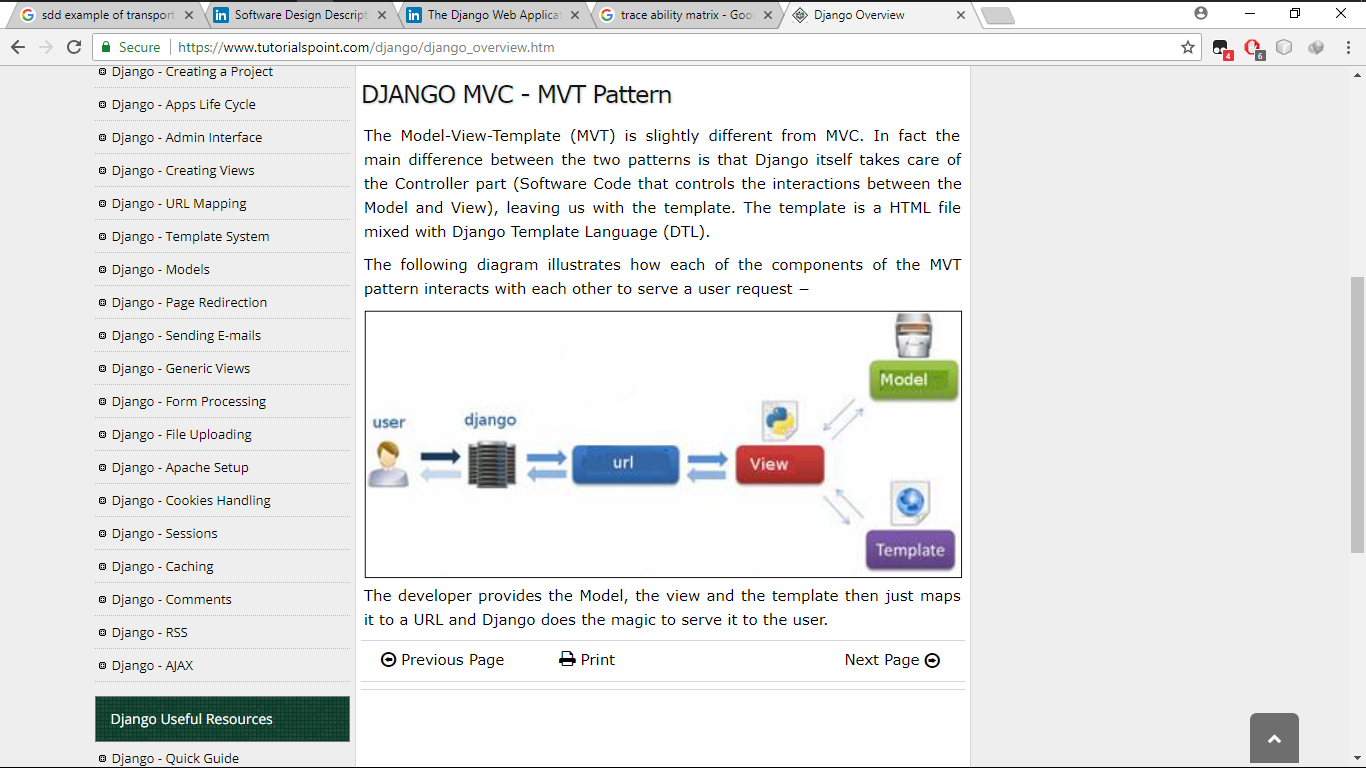
URL dispacher

Template

Views

Models

Database



* + 1. **Design Constraints**

There are several design constraints and limitations that come up when coming up with the design such us:

* Flexibility – the design has to be able to deal with the changes in a module that might arise. Coming up with a design that can be easy to deal with errors in a module
* Acceptability - an assumption had to be made on the visual design being liked or not. Also the flow of activities in the system had to be assumed that it would be liked by the user
* Integration – the design of the system integrating with other external systems was a problem since it would affect the system overall working
  + 1. **Future Contingencies**

Here are some of the likely circumstance that might lead to changes in the system plan:

* Requirements – there might be changes in requirements where features might need to be added or removed in the system depending on the departments needed I that particular time
  1. **Document Organization**

The current document is organized as follows:

* System architecture – this presents the system architecture of the EUTMS project including its subsystems by viewing the system from various perspectives such as the hardware architecture, software architecture and the internal communication architecture
* File and database design – this presents the system’s file and database organization and design. Gives the full and final design of the system’s database management system files including non-database management system files
* Human machine interface – this presents the design of system’s and subsystem’s inputs and outputs related to the users in details
* Detailed design – this presents information on hardware design, software design, and internal communication design that will be integrated together into the system
* External interfaces – presents information on the systems that are not within the scope of the EUTMS
* System integrity controls – presents information on the security and level of access to some information on the system
  1. **Points of Contact**
  2. **Project References**

SDD sys\_design\_doc.pdf by Dr. Wilfred Gikaru

* 1. **Glossary**

EUTMS- Egerton University Transport Management System

SDD – System Design Document

Dr. - Doctor

1. **SYSTEM ARCHITECTURE**
   1. **System Hardware Architecture**
   2. **System Software Architecture**
   3. **Internal Communications Architecture**
2. **FILE AND DATABASE DESIGN**
   1. **Database Management System Files**

Egerton University Transport management system will store its data in a database that will have seven tables:

* Users
* Drivers
* Vehicles
* Mechanics
* Items
* Requests
* Bookings

**USERS TABLE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **column** | **constraints** | **Data type** | **size** | **Description** |
| 1.StaffId | Primary key | Character varying | 15 | Staff id of the user |
| 2.Contact |  | Character varying | 15 | Contact of user |
| 3.Email |  | Character varying | 100 | Email of user |
| 4.Password |  | Character varying | 100 | Password of user |
| 5.Department |  | Character varying | 100 | Department of user |
| 6. User\_type |  | SmallInt | 1 | The category of user |
|  |  |  |  |  |

**DRIVERS TABLE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **column** | **constraints** | **Data type** | **size** | **Description** |
| 1.StaffId | Primary key | Character varying | 15 | Staff id of the driver |
| 2.Contact |  | Character varying | 15 | Contact of driver |
| 3.Email |  | Character varying | 100 | Email of driver |
| 4.Name |  | Character varying | 100 | Name of the driver |
| 5.Availability |  | Character varying | 40 | Availability of the driver |
|  |  |  |  |  |

**MECHANICS TABLE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **column** | **constraints** | **Data type** | **size** | **Description** |
| 1.Mechanic\_Id | Primary key | integer | 11 | Unique identifier of the mechanic |
| 2.Contact |  | Character varying | 15 | Contact of mechanic |
| 3.Name |  | Character varying | 100 | Name of the mechanic |
| 4.Availability |  | Character varying | 40 | Availability of the mechanic |
|  |  |  |  |  |

**VEHICLES TABLE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **column** | **constraints** | **Data type** | **size** | **Description** |
| 1.VehicleId | Primary key | integer | 11 | Unique identifier to vehicle |
| 2.Vehicle\_type |  | Character varying | 15 | The type of vehicle |
| 3.Number\_plate |  | Character varying | 10 | License plate of the vehicle |
| 4.Capacity |  | Integer | 11 | Capacity of vehicle |
| 5.Availability |  | Character varying | 40 | Availability of the vehicle |
| 6.Driver\_id | Foreign key |  | 15 | driver Identifier |
| 7.Mechanic\_id | Foreign key |  | 11 | mechanic Identifier |

**ITEMS TABLE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **column** | **constraints** | **Data type** | **size** | **Description** |
| 1.Item\_id | Primary key | Integer | 11 | Unique identifier to items |
| 2.Amount |  | Integer | 11 | Quantity of item |
| 3.Name |  | Character varying | 100 | Name of the item |
| 4.Cost |  | Integer | 11 | Cost of the item |
| 5.Supplier |  | Character varying | 50 | Supplier of the item |

**REQUESTS TABLE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **column** | **constraints** | **Data type** | **size** | **Description** |
| 1.Request\_id | Primary key | integer | 11 | Unique identifier to vehicle |
| 2.Travellers |  | integer | 11 | Number of travelers |
| 3.Travel\_date |  | Timestamp without time zone | 10 | Day and time of travelling |
| 4.Return\_date |  | Timestamp without time zone | 11 | Day and time of travelling back |
| 5.Destination |  | Character varying | 40 | Destination |
| 6.Party |  | SmallInt | 1 | Type of travelers i.e. staff |
| 7.User\_id | Foreign key |  | 15 | User Identifier |
| 8.Confirmed |  | Boolean(default=false) |  | Shows if request is confirmed or denied |

**BOOKINGS TABLE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **column** | **constraints** | **Data type** | **size** | **Description** |
| 1.Booking\_id | Primary key | Integer | 11 | Unique identifier to booking made |
| 2.User\_id | Foreign key |  | 15 | User Identifier |
| 3.Vehicle\_id | Foreign key |  | 11 | Vehicle Identifier |
| 4.Request\_id | Foreign key |  | 11 | Request Identifier |
| 5.Driver\_id | Foreign key |  | 15 | Driver Identifier |

* 1. **Non-Database Management System Files**

1. **HUMAN-MACHINE INTERFACE**
   1. **Inputs**
   2. **Outputs**
2. **DETAILED DESIGN**
   1. **Hardware Detailed Design**
   2. **Software Detailed Design**
   3. **Internal Communications Detailed Design**
3. **EXTERNAL INTERFACES**
   1. **Interface Architecture**
   2. **Interface Detailed Design**
4. **SYSTEM INTEGRITY CONTROLS**