Task and Time Management System

EEC 626 | SOFTWARE ENGINEERING PROJECT

DEVELOPER GUIDE

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1. Introduction

Introduction gives you information regarding the some more in-depth detail about project such as what kind of feature it has covered, purpose, scope and what is being covered by web application.

1.1. Purpose

The main purpose of the system is to increase the efficiency of tracking the progress of the task. Apart from that number of offices are being managed in low budget so for keeping the track of time spent on the task, it can also increase the efficiency by time wise.

1.2. Scope

This report will cover major hardware and software requirements in detail including the high-level system architecture diagram, use-case diagram and ER diagram.

1.3. Proposed System

The proposed system will cover the following features to achieve the efficiency in task and time management.

- Supervisor can add a work with the different work title as a 'task', 'project' or 'event' and assign it to specific student by checking their schedule.
- Supervisor can check the total hour spent on assigned task
- Supervisor can also check for individual hour spent on task if it has been assigned to multiple students
- Supervisor will receive the email notification when user update the status of the task to 'completed'
- Supervisor and student can comment on task for asking question and having update on the task.

2. System Modules and related Features

There are three modules of the system namely:

2.1. Admin

Admin module will be used by the admin of the system where admin can create a new role of the system such as 'Graduate Assistant' or any specific role of the student worker. Admin can add new office and assign the supervisor of office further so after that student users can sign up under that office.

2.1.1. Admin can add new user roles

Once admin logged in to system, there is a clickable option called 'add new user role'. On click of that button there is a list of all user role and one option for adding a new user. It can be done by just typing text of user role and clicking a button 'Create Role'.

2.1.2. Admin can add new authorized user

For allowing other user to access system and assigning proper authorization such as 'supervisor', this things can only be done by admin. In Home page of admin area there is an option for adding new authorized user(Add New Authorized User). After that user can select role(Admin, Supervisor, Student) and select office further there will be all text boxes for email, username, password, first name, last name, address, city, state, country and phone number.

2.1.3. Admin can add new office

This system is developed for the use of the multiple offices of the Cleveland State University so this is the important feature is to add the office into system. And it can be done from home page by selecting the 'add new office' option.

2.2. Supervisor

Supervisor can create a new work with specific type such as Task, Project, Event and it also include detailed description, its deadline and its status. Supervisor can see list of work and from there they can assign those works to students. Supervisor can create a new work type. The last and main one is they can see the work report which shows work title with total hour spent it's also include the individual spent hours if it has been assigned to multiple students.

2.2.1. Supervisor can add new work

After log in section and using this feature supervisor can add new work by selecting a option name 'Create new work'. In creation work requires the type of work (task, project, event), priority and some description such as title, description, deadline and its status.

2.2.2. Supervisor can see list of work

List of work can be visible by clicking see all works from home page. The list contains the information such as priority, title, status, assigned students and related option.

2.2.3. Supervisor can short the list by work type

In the list of all works there is option to see only work with specific so it can be done by just clicking the name of the work type.

2.2.4. Supervisor can assign students to work

In list of work there is an option called 'Edit Assignments' from where it will open edit assignment where its shows all student users in system and from there supervisor can change the assignment by selecting multiple students.

2.2.5. Supervisor can comment on work

This feature can be used by clicking the detail button which will open the overall detail about project and in below section there is an option to add comment. Where supervisor and student can talk regarding the assigned task.

2.2.6. Supervisor can delete the work

Supervisor can delete the work by just clicking the delete option from right side menu of the list of the work.

2.2.7. Supervisor can create a new type of work

There are already three type of work there namely task, event and project but in the future if supervisor wants to add new type of work then it can be done by choosing the 'Create/Edit Work Type' option.

2.2.8. Supervisor can see work report

This is one of the most important feature of the system from where supervisor can see the work report in the terms of total hour spent on work by students. This option is in the home page of supervisor area.

2.2.9. Supervisor can see individual work report

This is another feature of work report where supervisor can see the individual hour spent by students if that task is assigned to multiple students. This option is in the Work Report option

2.2.10. Supervisor can receive email notification

How the supervisor get to know that assigned task has been completed. For this requirement, project has email notification feature so when student change the status of the assigned task to 'completed' system will send email notification to supervisor.

2.3. Student/User

Students see the list of assigned task check the details of it and they can add comments to it if they have any questions. Student can update the status of the task for instance, from assigned to In-Progress, AboutToFinish or Completed. They can enter the hour spent on the that day and check for all work log history.

2.3.1. Student can see assigned task

From home page of student area there is an option named 'see assigned tasks' will land student to list of assigned task. On above the list of assigned task there are three option for shorting the list by its type.

2.3.2. Student can update the status of the work

From the list of assigned task each task has option to change the status of the task by clicking 'update status' student can change the status of the task from listed option.

2.3.3. Student can comment on the assigned task

In the list of all assigned work there is one more option named detail for seeing the detail of the task and this page has comment section from where student can comment on those tasks and see the other comments as well.

2.3.4. Student can enter their work-log

From home page of user there is an enter work log button which lands student to enter the work log page. Where they can select time range and select the assigned task.

2.3.5. Student can see their work log

After adding work hour if student wants to see the added hour which can be viewable form the home page by clicking the 'see your work log' button.

3. Software and Hardware Requirements

Software Requirements

OS: Win 8, Win 8.1 or Win 10

Minimum 3 GHz processor

Microsoft .NET Framework 4.5.x

ASP.NET MVC 5

EntityFramework 6.0

Microsoft Visual Studio 2015 (Professional/ Premium / Ultimate /Express Editions)

Database: Microsoft SQL Server 2016

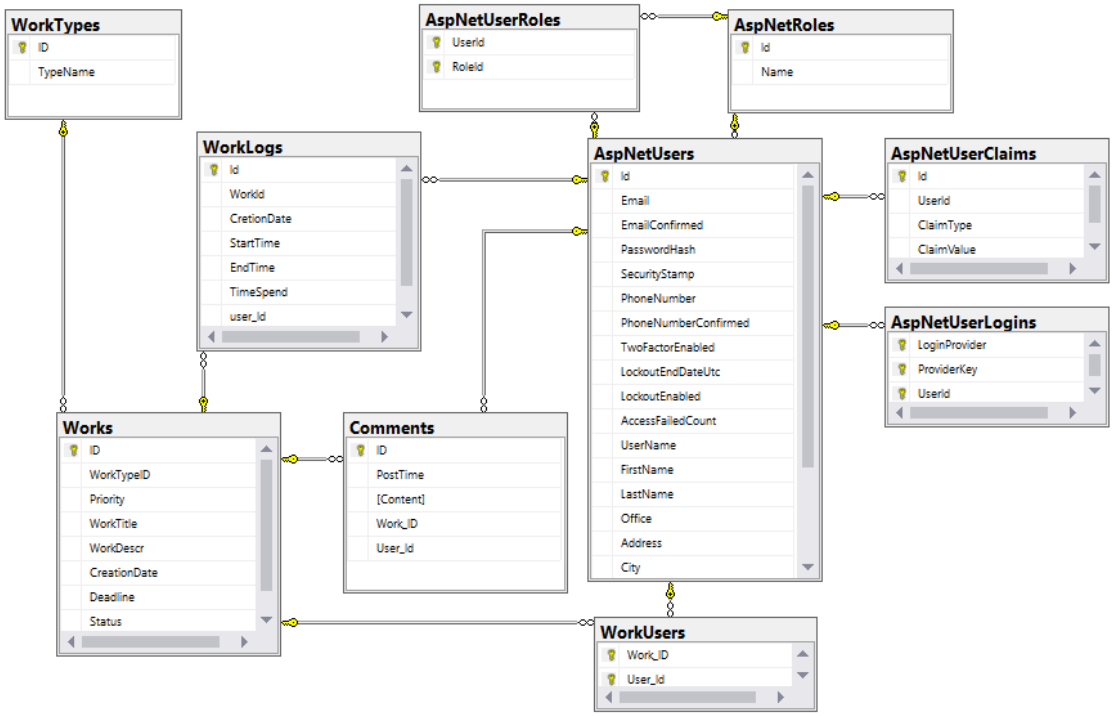
Hardware Requirements

Hard Disk Storage: Minimum 80 GB

RAM: 8 GB

Processor: X64 based pcs with 4 core

4. Database Design



Above mentioned figure shows the database schemas which has been used in this project where the black box states for the tables and the line between them mentions relationship between those tables.

As I have used MS Identity to create the user related tables such as ASPNetUser, ASPNetRoles, ASPNetUserClaims, ASPNetUserLogins and ASPNetUserRole. All other table were generated using the Entity Framework Code First approach.

ASPNetUsers: This table contains information of all users of the system. Which choose the user role by using the foreign key. This table has following fields: Email, Password, PhoneNumber, FirstName, LastName, Office, Address, City State, Zip and Country.

ASPNetRoles: This table contains information of the user roles which can be assigned to every user. It has just a text of role and the ID.

ASPNetUserClaims: This table can be used in the future for making a claim such as at what time they have logged in and what kind of changes has been made over the time.

ASPNetUserLogins: This is another table that can be used in future for doing log in using another provide such as google, outlook, facebook or any other.

ASPNetUserRole: This table contains information of userid and roleid which states the one to one relation between the ASPNetUser and ASPNetRole table.

WorkTypes: This table has information of the type of work which has been created by supervisor and it is further assigned to work. It just has two column namely ID and TypeName.

Works: Work table is one of the most important table which contains the work information such as WorkType (a foreign key to WorkType table), Priority, Title, Description, CreationDate, Deadline and it status.

WorkUsers: This table is generated for keeping the information of multiple to multiple relationship between Work and User table. As one work can be assigned to multiple students and a student may have multiple task to be get work on.

WorkLogs: WorkLogs keeps the data of how much time spent on which work and by whom. This table has column named CreationDate, StartTime, EndTime, TimeSpent with two foreign key, one for User and another for Work.

Comments: This table stores all the comments and it has column such as PostTime, Content including two foreign key one for the comment for which work and another for by whom means UserID.

5. Maintenance

Task and Time management System has three main backbone:

1) MVC designed pattern

This design pattern used to separate the back-end logic and its front-end use. All the model states the database table and it has generated using the entity framework code first approach. Which I will further explain in send part, the main logic coded in controller which do the all kinds all data gathering functions and passing it to appropriate view.

Controllers: Every controllers does specific work related to model. All the data gathering function can be done using the LINQ queries and all the data can be filled to model which can be further passed to view.

AccountController: This controller does all task related account such as signin, register, authentication and logout. The methods in controller which returns the ActionResult forward the model to view and view collect the data and put it with appropriate HTML format.

Views – We have used only two view first is Login and another is Register.

AdminController: This controller has main two methods which returns the view, the Index just returns the HTML page with options and another is admin registration which will show the form and submit the data.

Views: Admin Home page and Admin Registration page.

AssignedTaskController: This controller designed for students user so they can get the information regarding the assigned task including the Create, Edit, Details, Update, SubmitComment and SendEmail.

HomeController: This controller only returns the home page of the overall website.

OfficeController: This controller used to do operations such as Create, Edit, Update, Delete and viewing the detail of the office. It uses the Office Model.

Views: Create, Edit, Delete and Details view.

Role, User, WorkType, WorkLogs, WorkReport and Supervisor controller do same operation – Creating the data by gathering using view, Editing, Deleting those data and showing the view with detail information from database.

All controller files can be found in Controllers folder in root directory and view can be found in Views folder which has the folders named in controller and all the views related to that controller will be in folder named as per the controller name.

2) Entity Frame approach for creating database

All the model in MVC pattern has created using the Entity Framework which work as a intermediator between the model and the appropriate database column.

There are two types of models first one is simple model with strongly connected database table and another is ViewModel which as used to fill data from multiple model and passing it to appropriate view and ViewModel does not have the database table.

AccountViewModel:

This model uses 'User' model to gather data and creating different models such as LoginIn and Register.

Comment: Which directly connected to Comment table from database.

SupervisorViewModel: This model contain view model related to supervisor module such as WorkViewModel.

Work: Work model is connected to Works table from the database.

WorkAssignmentViewModel: This model is used for the storing and fetching the data related to all student user of the system and which of them has been assigned to which tasks.

WorkLog: This model is directly connected to WorkLog table to database.

WorkLogReportViewModel: This model used for saving the data for generating report.

WorkType: This model is directly connected to WorkType table to database.