

Task and Time Management System

EEC 626 | SOFTWARE ENGINEERING PROJECT

FINAL REPORT

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Arpit Patel | 2657673

Supervisor | Dr. Yongjian Fu

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Abstract

Cleveland State University has number of small offices where students are working and the managers/supervisors doesn't have that much amount of time to track each students' work progress when office has more than 8 student workers. The primary goal of the project to develop a Web based application that can be used in small offices of Cleveland State University for assigning task and tracking the time spent on assigned task. The name of this web application is "Task and Time Management System".

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 from 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

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

Database: Microsoft SQL Server 2016

Hardware Requirements

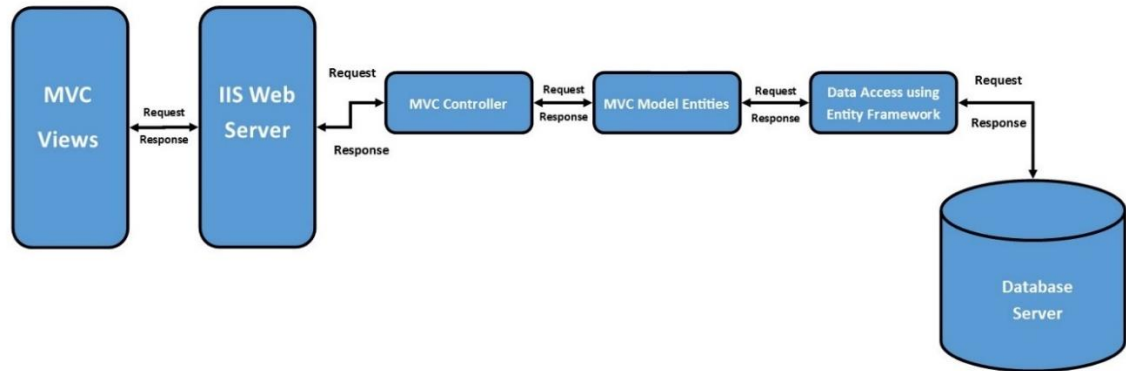
Hard Disk Storage: Minimum 80 GB

RAM: 8 GB

Processor: X64 based pcs with 4 core

4. System Design

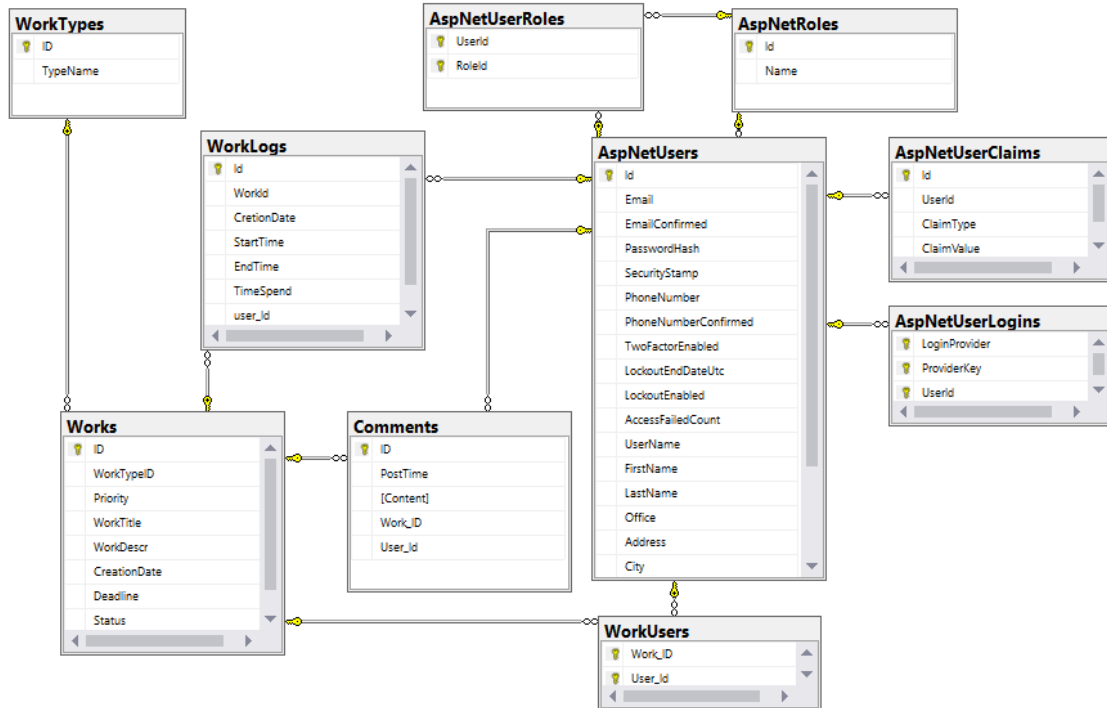
4.1. High Level Architecture Diagram



Above mentioned figure is the high-level architecture which is used in this project where each page has been created as a view, which is going to be get called by related controller and the communication will be done by using IIS Express Web Server. If the related MVC View is posting any data to server which directly handled by Controller which will fill the data to connected Model and it will access the data from the database using the Entity Framework.

4.2. Diagrams

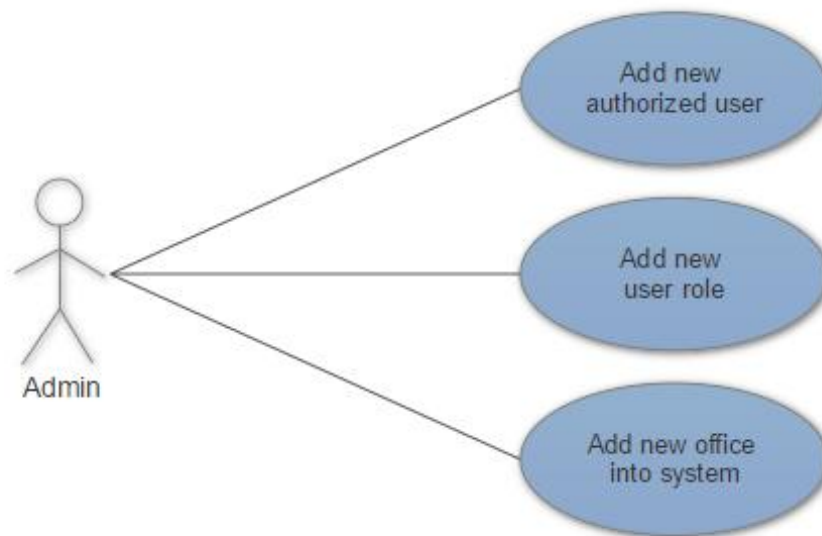
4.2.1. Database Schema Design



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. AspNet tables is generated by the system it-self and other were generated using the entity framework code first approach.

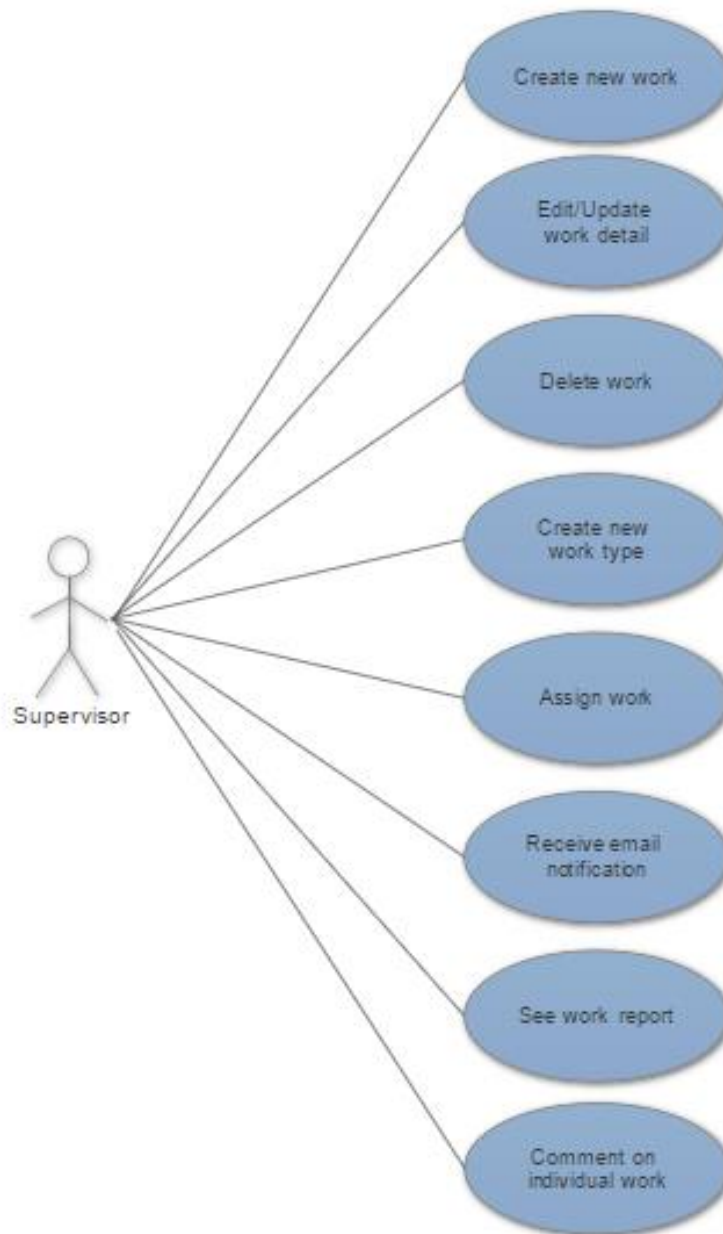
4.2.2. Use Case Diagram

1) UC – Admin User



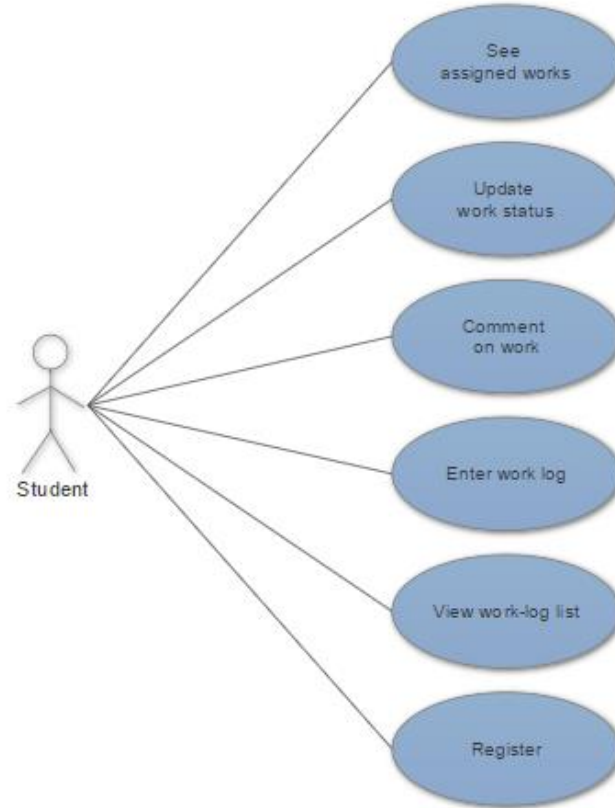
Use case diagram of the admin user shows the main three activities that can be done from the Admin area. Such as Admin can add new authorized used such as a new admin user or a supervisor of the system where which can be assigned to office. Before adding the new supervisor, admin needs to add office first. Admin can also add new user role to system.

2) UC – Supervisor User



Supervisor module includes a wide feature such as adding a new work type and new work. Added work can be later edited and deleted from the system. After adding work, it can be assigned to the student workers. For follow up supervisor can add comments to it and when student update the status of the work as complete supervisors can get the email notification. Supervisor can see the individual work report as well.

3) UC – Student User



Student module starts with the registration where they can sign-up for any office in CSU after that they can see their assigned task and see the details of it. Student can comment the work and update the status of the task so supervisor can get notified if the work is completed. Student can add work log so supervisor can track the hour spent on assigned work.

5. Testing

Testing is one the most integral part of the software development where programmers do numbers of activities to check whether the delivered product has no issues and working perfectly as it was mentioned in requirement document. It is not guaranteed that software is bug free, but different kind of testing can help to improve the quality of the software.

5.1. Requirements to test

Here are the all requirements from distinct module to be get tested.

- **General**
 - Student can register into the system
 - All the user can log-in to system
- **Admin**
 - Admin can add new user roles
 - Admin can add new authorized user
 - Admin can add new office
- **Supervisor**
 - Supervisor can add new work
 - Supervisor can see list of work
 - Supervisor can short the list by work type
 - Supervisor can assign students to work
 - Supervisor can comment on work
 - Supervisor can delete the work
 - Supervisor can create a new type of work
 - Supervisor can see work report
 - Supervisor can see individual work report
 - Supervisor can receive email notification
- **Student**
 - Student can see assigned task
 - Student can update the status of the work
 - Student can comment on the assigned task

- Student can enter their work-log
- Student can see their work log

5.2. Test Case Design

In the process of design, I have used the uniform template from the named 'Test Case Specification Template'.

Test Case Specification Identifier

Test Item – which describe the requirement and its condition to be tested

Input Specification – input value which has been entered to test the requirement

Output Specification – output which can be get after testing

Environmental need – any hardware or software requirement needed for testing

Testing template:

Test Case No.	Test Case Description	Test Result
TC_Admin_1	Input Specification	Pass / Fail
	Output Specification	

5.3. Test Case Specification

General test case:

- Student can register into the system

Pre-requisites: user must be on registration page to perform this test case

Test Case No.	Test Case Description	Test Result
TC_General_1	Input: Input the values of User Role, Office Name, Email, User Name, Password, First Name, Last Name, Address, City, State, Zip, Country and Phone. At the end click register button.	Pass
	Output: Registration completion page.	

- All the user can log-in to system

Pre-requisites: Need appropriate username/email and password

Test Case No.	Test Case Description	Test Result
TC_General_2	Input: Credentials of Admin, Supervisor and Student	Pass
	Output: Forwarded to appropriate home page as per the entered credential.	

- All the user can log-out from system

Pre-requisites: No pre-requisites

Test Case No.	Test Case Description	Test Result
TC_General_3	Input: Credentials of Admin, Supervisor and Student	Pass
	Output: Forwarded to appropriate home page as per the entered credential.	

Admin Module:

- Admin can add new authorized user

Pre-requisites: Admin must be logged on.

Test Case No.	Test Case Description	Test Result
TC_Admin_1	Input: Need information such as User Role, Office Name, Email, User Name, Password, First Name, Last Name, Address, City, State, Zip, Country and Phone. And then click register button.	Pass
	Output: Admin navigates to admin home page	

- Admin can add new user role

Pre-requisites: Admin must be logged on.

Test Case No.	Test Case Description	Test Result
TC_Admin_2	Input: Enter the text of user of role	Pass
	Output: Admin navigates to list of all user roles	

- Admin can add new office

Pre-requisites: Admin must be logged on

Test Case No.	Test Case Description	Test Result
TC_Admin_3	Input: Need information such as Office Name, Description, Address, City, State, Zip, Country and Phone. After that click create button.	Pass
	Output: Admin navigates to list of offices.	

Supervisor Module:

- Supervisor can add new work

Pre-requisites: Supervisor must be logged on

Test Case No.	Test Case Description	Test Result
TC_Supervisor_4	Input: Need to select Work Type, Priority and information such as Work Title, Description, Deadline.	Pass
	Output: Supervisor navigates list of all work	

- Supervisor can see list of work

Pre-requisites: Supervisor must be logged on

Test Case No.	Test Case Description	Test Result
TC_Supervisor_5	Input: Need to click on 'list of all work'	Pass
	Output: Supervisor navigates to list of all work	

- Supervisor can short the list by work type

Pre-requisites: Supervisor must be logged-in and must be on the page of list of all work

Test Case No.	Test Case Description	Test Result
TC_Supervisor_6	Input: Just need to click on the 'Work Type' name from the navigation bar	Pass
	Output: All list of work will be get shorted by selected work type	

- Supervisor can assign students to work

Pre-requisites: Supervisor must be logged-in and must be on the 'Edit Assignment' page

Test Case No.	Test Case Description	Test Result
TC_Supervisor_7	Input: Need to select the list of students from the list to whomever it need to assigned	Fail
	Output: Supervisor navigates to list of all work	

It has generated the list type error.

- Supervisor can comment on work

Pre-requisites: Supervisor must be logged-in and must be on the 'Detail' page

Test Case No.	Test Case Description	Test Result
TC_Supervisor_8	Input: Description of comment	Pass
	Output: Redirected to same page with the newly added comment on the page.	

- Supervisor can delete the work

Pre-requisites: Supervisor must be logged-on

Test Case No.	Test Case Description	Test Result
TC_Supervisor_9	Input: A click event on 'Delete' button	Pass
	Output: Supervisor forwarded to list of all work	

- Supervisor can create a new type of work

Pre-requisites: Supervisor must be logged-on

Test Case No.	Test Case Description	Test Result
TC_Supervisor_10	Input: Select the option from home page to create a new work type and add text of the new work type	Pass
	Output: Supervisor navigates to list of work type page	

- Supervisor can see work report

Pre-requisites: Supervisor must be logged-in and must be on the 'Home' page

Test Case No.	Test Case Description	Test Result
TC_Supervisor_11	Input: Need to click Work Report button and for individual report need to click 'See Individual Hour Spent' button	Pass
	Output: Supervisor will see the all works with total hour spent on that work	

- Supervisor can see individual work report

Pre-requisites: Supervisor must be logged-in and must be on the 'Work Report' page

Test Case No.	Test Case Description	Test Result
TC_Supervisor_12	Input: Need to click 'See Individual Hour Spent' button	Pass
	Output: Supervisor will see how much individual hour spent on the work	

- Supervisor can receive email notification

Pre-requisites: No Pre-requisites

Test Case No.	Test Case Description	Test Result
TC_Spervisor_13	Input: Student need to change the status of the work to 'Completed'	Pass
	Output: Supervisor will get notified by email with specific format of which work has been completed and by whom	

Student Module

- Student can see assigned task

Pre-requisites: Student must be logged-in

Test Case No.	Test Case Description	Test Result
TC_Student_1	Input: From student home page student need to select the Assigned Work to see all assigned work	Pass
	Output: All list of assigned work will populate	

- Student can update the status of the work

Pre-requisites: Student must be logged-in and must be on the 'Update Status' page

Test Case No.	Test Case Description	Test Result
TC_Student_2	Input: Need to select update status from the dropdown list	Pass
	Output: Student navigates to list of all work with updated status	

- Student can comment on the assigned task

Pre-requisites: Student must be logged-in and must be on the 'Detail' page

Test Case No.	Test Case Description	Test Result
TC_Student_3	Input: Description of comment	Pass
	Output: Student will be redirected to same page with the newly added comment	

- Student can enter their work-log

Pre-requisites: Student must be logged-in

Test Case No.	Test Case Description	Test Result
TC_Student_4	Input: Need to select the assigned work with start time and end time	Pass
	Output: Student navigates to list of all work-log	

- Student can see their work log

Pre-requisites: Student must be logged-in

Test Case No.	Test Case Description	Test Result
TC_Student_5	Input: Needs to click the work-log button	Pass
	Output: Student navigates to list of all work-log	

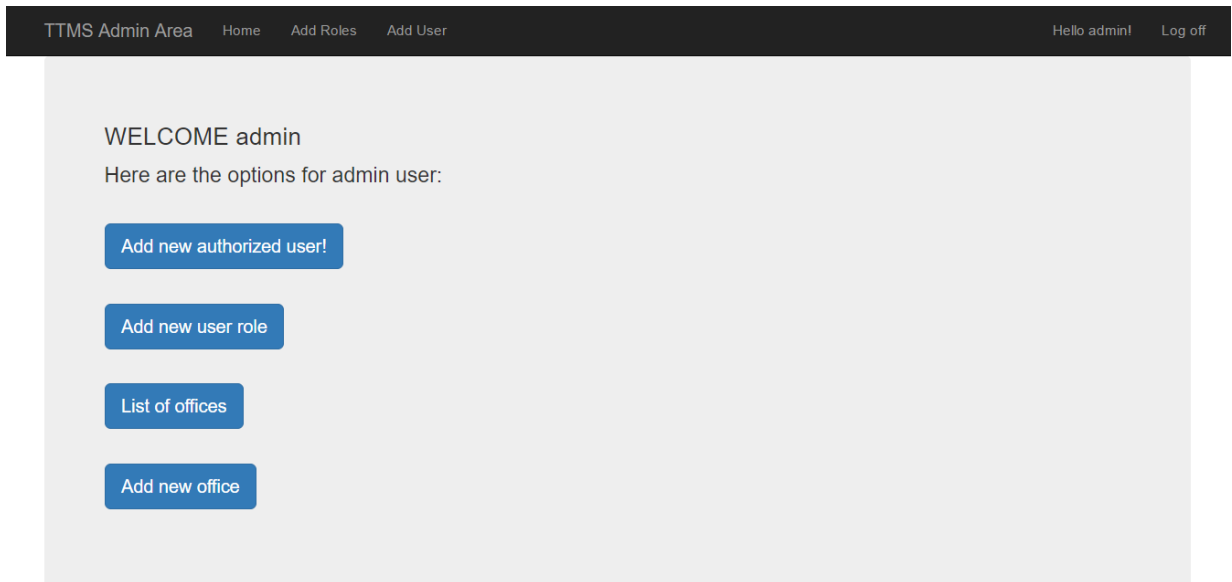
5.4. Test Statistic

Test statistic shows how many cases has evaluated and how many of them has failed.

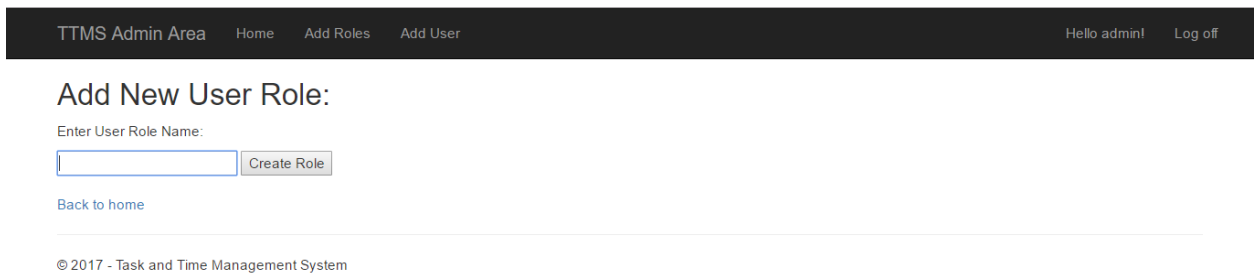
Passed test cases	Failed test cases	Total test cases
20	1	21

6. Screenshots

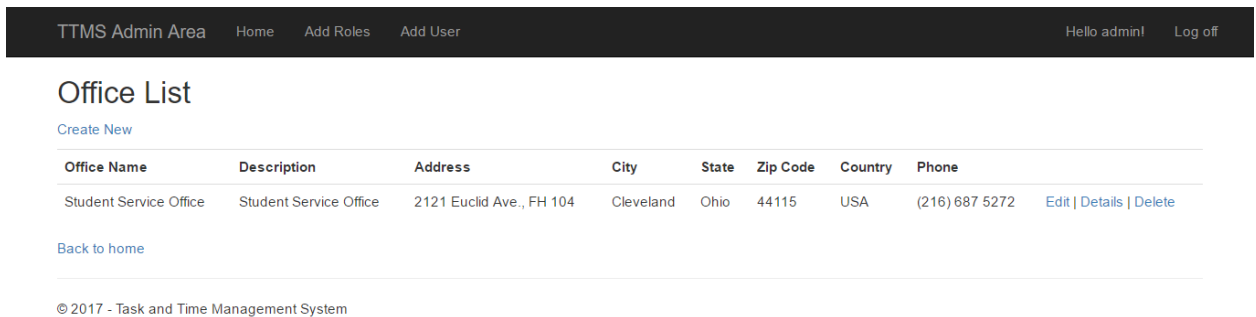
Admin Home Page



Add new user role



List of offices



Add new office

Add new office

Office Name	<input type="text"/>
Description	<input type="text"/>
Address	<input type="text"/>
City	<input type="text"/>
State	<input type="text"/>
Zip Code	<input type="text"/>
Country	<input type="text"/>
Phone	<input type="text"/>
	<input type="button" value="Create"/>

Supervisor Home Page

WELCOME supervisor

Here are the options for supervising area:

Create new Work

All Works

Create/Edit Work Type

Work Report

Add new work

TTMS Supervision Area

Home

Add Work

Assign Work

Individual report

Hello supervisor!

Log off

Create a new Work

Work Type

Task

Priority

Low

Work Title

Description

Deadline

mm/dd/yyyy

Status

May 2017

Sun

Mon

Tue

Wed

Thu

Fri

Sat

30

1

2

3

4

5

6

7

8

9

10

11

12

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[Back to List](#)

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All list of work

TTMS Supervision Area

Home

Add Work

Assign Work

Individual report

Hello supervisor!

Log off

All list of works

[Create New](#)

[Tasks](#) | [Events](#) | [Projects](#)

Priority	Work Title	Description	Deadline	Status	Assigned Students	
Low	Task with low priority11	Task with low priority	4/15/2017	Completed	Arpit	Edit Edit Assignments Details Delete
High	High priority project	description of High priority project	4/16/2017	Completed	Yash Arpit Briana	Edit Edit Assignments Details Delete
High	event with medium priority	event with medium priority	4/16/2017	Completed	Yash Arpit Briana	Edit Edit Assignments Details Delete
Medium	Event with medium priority	This is the description of the Event with medium priority	5/17/2017	NotAssigned		Edit Edit Assignments Details Delete

Creating/Editing/Deleting Work type

TTMS Supervision Area

Home

Add Work

Assign Work

Individual report

Hello supervisor!

Log off

Work-types

[Create New](#)

Work Type	
Task	Edit Delete
Project	Edit Delete
Event	Edit Delete

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Work report

TTMS Admin Area

Home

Add Roles

Add User

Hello supervisor!

Log off

Work Report

[Back to home](#)

Work Title	Hour Worked	
Task with low priority11	8.1	See Individual Hour Spent
High priority project	4.42	See Individual Hour Spent
event with medium priority	6.28	See Individual Hour Spent
Event with medium priority	0	See Individual Hour Spent
Making a tall tower bags	0	See Individual Hour Spent

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Individual work report

TTMS Admin Area

Home

Add Roles

Add User

Hello supervisor!

Log off

Report By Individual Hour

Work Title	Student Worked	Hour Spent
Task with low priority11	Arpit	8.02

[Back to List](#)

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Student Home Page

TTMS Student Area

Assigned Tasks

Enter Worklog

Past Worklogs

Hello User1@gmail.com!

Log off

WELCOME User1@gmail.com

Here are the options for student users:

See assigned tasks

Enter your work log here!

See your Work log

View/Update/Delete Work

TTMS Student Area

Assigned Tasks

Enter Worklog

Past Worklogs

Hello User1@gmail.com!

Log off

Your Assigned Tasks

[Your tasks](#) | [Your group projects](#) | [Upcoming events](#)

Work Type	Priority	Work Title	Description	Creation Date	Deadline	Status	
Task	Low	Task with low priority11	Task with low priority	4/8/2017	4/15/2017	Completed	Update the status Details
Project	High	High priority project	description of High priority project	4/8/2017	4/16/2017	Completed	Update the status Details
Event	High	event with medium priority	event with medium priority	4/9/2017	4/16/2017	Completed	Update the status Details

[Back to home](#)

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Adding work log (Mobile View)

Work log

TTMS Student Area Assigned Tasks Enter Worklog Past Worklogs Hello User1@gmail.com! Log off				
Work-log History				
Add new work log				
Work Title	Creation Date	Start Time	End Time	Total Time Spent
Task with low priority11	4/17/2017 5:20:32 PM	4/17/2017 5:20:00 PM	4/17/2017 5:25:00 PM	0.08
Task with low priority11	4/17/2017 5:37:13 PM	4/17/2017 4:00:00 PM	4/17/2017 5:00:00 PM	1
event with medium priority	4/27/2017 2:29:19 PM	4/27/2017 12:28:00 PM	4/27/2017 2:29:00 PM	2.01
event with medium priority	4/27/2017 4:52:23 PM	4/27/2017 3:52:00 PM	4/27/2017 4:53:00 PM	1.01
event with medium priority	4/27/2017 4:53:04 PM	4/27/2017 2:36:00 PM	4/27/2017 5:52:00 PM	3.26
High priority project	4/27/2017 4:55:39 PM	4/27/2017 12:00:00 PM	4/27/2017 4:25:00 PM	4.42
Task with low priority11	4/27/2017 7:49:49 PM	4/27/2017 5:48:00 PM	4/27/2017 7:49:00 PM	2.02
Task with low priority11	5/6/2017 9:50:36 AM	5/6/2017 7:50:00 AM	5/6/2017 12:50:00 PM	5
Back to home				
© 2017 - Task and Time Management System				

Student Registration

Register.

Create a new account.

User Role	<input type="text" value="Student"/>
Office Name	<input type="text" value="Student Service Office"/>
Email	<input type="text" value="Student Service Office"/>
User Name	<input type="text"/>
Password	<input type="password"/>
Confirm password	<input type="password"/>
First Name	<input type="text"/>
Last Name	<input type="text"/>

User Login

Log in

Use a local account to log in.

User Name	<input type="text" value="admin"/>
Password	<input type="password" value="*****"/>
<input type="checkbox"/>	Remember me?
<input type="button" value="Log in"/>	

[Register as a student user](#)

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7. Conclusion

Task and Time Management System can be used in any office of the Cleveland State University where they have student workers. It consumes less time when it comes to assigning the tasks to multiple student workers and keeping track of what they worked and how much time they have spent. Communication of the supervisor and students can be done using comments where student can ask if they have any questions and supervisor can ask for update regarding the any assigned work. Time can be tracked by using the work report features and email notification can be received by supervisor when student set the status of task as 'Completed'.

8. Future Enhancement

Task and Time Management System is working well as the test report has been generated. There are several things can be added to future development such as navigation notification bar where each user may have their own notification section regarding the new added comments. Calendar integration can be a lot useful when assigning task to student user so supervisor can see the shared calendar and make appropriate task assignment.