**Student Written Assessment (5TSD Start Finance - Assignment)**

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| **Business Unit/Work Group** | IT Studies | | |
| **Qualification Code** | National Code: ICT50715 TP000750 | **Qualification Title** | Diploma of Software Development |
| **Unit Code/s** | ICTPRG502 | **Unit Title/s** | Manage a project using software management tools |
| **Assessment Task Title** | **5TSD Start Finance - Assignment** | | |
| **Student Name** | Submit your solution via your LEARN account | **Student SIS ID** | Submit your answers via your LEARN account |
| **Assessor Name** | You have been added to a LEARN group which defines your assessor. This is normally your Course Registration Number (CRN) lecturer. | **Date** | 2019 Semester 2 |

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| **Student Guide for Practical Assessment** | |
| **Overview of Assessment** | This assessment will require you to complete four sections requirements for Start\_Finance Assignment. Each section has multiple parts require you to complete.  In this assessment you will cover the following topics:   * Select the software management tools * Use the software management tools * Monitor the use of software management tools   The assessment is broken into 4 separate SECTIONS (SECTION A ~ D) and you will submit the solution by the assessment due date. There are some questions are team work and some questions are individual assessment. Students should make sure which question require you to participate as group work and/or individual work. |
| **Task/s to be assessed** | This part of the assignment requires you to use a management software tool, a source control software and monitor the project plan. The following pages will define the specific tasks you need to complete. |
| **Time allowed** | You have the whole course duration to complete this exercise, however the assignment has its submission date. You should adhere to this date so that you get a balanced work load throughout the semester.  The submission date is provided in the LEARN course and summarized in the Assessment Submissions topic in LEARN. |
| **Location** | You can complete this assessment during your practical sessions and at home. |
| **Decision making rules** | To receive a satisfactory outcome for this assessment you must complete all tasks and parts correctly. |
| **Assessment conditions** | You must use the project management software, source-control software and the Collaboration tools in completing this assessment. |
| **Resources required** | None. |
| **Results/Re-assessment** | You will be provided feedback for each task of the assessment and be given the opportunity to resubmit with any required corrections only once. |
| **Submission Instructions** | The exercise can be found in the Assessment Submission Topic on LEARN. Your solution is required to upload to LEARN. |

**Start Finance – Assignment**

***Assignment background:***

*Complete this assignment using the Git, Trello Project Management Software & GitHub. The assignment is a practical exercise which requires students to work together in a team development environment. Each group should have 3 team members.*

*It focuses to give students with the following experiences:*

1. *Project planning and monitoring progress using an agile methodology.*
2. *Team development. Define roles and responsibilities of team members.*
3. *Experience the collaborative communication between development members.*
4. *Experience the change control & using the version control management tools.*
5. *Document the artefacts uses. Setup project official site and wiki.*
6. *Develop codes with multiple developers simultaneously and deliver release.*
7. *Prepare for software release.*

*Develop the application under join efforts using the distributed version control client tool and a remote server with the repository hosted in the open source project environment. Other than getting the code developed, students are expected to be able to describe the source control procedures such as branching and merging process in relation to the revision number of their codes.*

*The class is divided into student groups.*

* *Each group should be no more than 3 members.*
* *Organise your group so that you have a group leader (administrator) and developer members.*
* *All students must register an account with GitHub and Trello.*
* *Each group is assigned with:*
* *GitHub project name* ***Tafe19S2xx****.*
* *Trello board Name as:* ***Scrum19S2xx****. xx is a serial number such as* ***01, 02, 03*** *…. etc.*
* *The lecturer is acted as the project owner & collaborator*
* *The initial release is available from the Assessments section in LEARN.*
* *The assessment has individual assessment and team assessment components. All individual and team submissions are due by Week 8 (16/09/2019) and the Team demonstration is to be held on Week 9 (23/09/2019).*
* *For submission: Individual work components is to be submitted by individual student through the individual work submission link on Moodle. The team work component is to be submitted by the group leader through the team work submission link on Moodle.*

**Scenario:**

ITWorks director would like to further develop an existing open source project so that the employees would be able to use it without cost. The director would like to sponsor the project with minimum costs. He realized that the project is a small and short-term project. ITWorks would like to fork the project and call it as Start\_Finance application. The existing application is not a complete product yet. ITWorks has called for open source community members to further develop the application. The director would like to be the product owner and involved in the development process. The project is developed using MS Visual Studio 2015 UWP – C# accessing to the SQLite database. The codes are version controlled and deposited in the repository using a git server. You are working in ITWorks as a developer. You have also already ganged up some open source team members to develop the Start\_Finance application further.

The given application has completed the development on one functional area such as Finance maintenance. The project will be developed further by your team members. The new development is required to include extra functions to maintain the Personal Information, Contact Details, Appointments & Shopping List. Each group member is responsible to develop one of these functional areas (Note: The Finance function has already been done). Given the program in LEARN, you are required to add codes so that each function should be able to perform these core functions:

* create new records
* update the existing record
* and delete the existing records

Each team member should confirm one of the following functional area to develop. e.g.

* **Personal** Info (e.g. PersonalID, FirstName, LastName, DOB, Gender, Email Address, MobilePhone)
* **Contact** Details (e.g. ContactID, FirstName, LastName, CompanyName, MobilePhone)
* **Appointment** info (e.g. AppointmentID, EventName, Location, EventDate, StartTime, EndTime)
* **Shopping List** info (e.g. ShoppingItemID, ShopName, NameOfItem, ShoppingDate, PriceQuoted)

The initial application was developed under an open source project in the C# .NET platform. You may be experiencing the skill differences from an open source project. You can totally rebuild the application to suit your skills so far if it is agreed between your team members.

Each student must clone the remote repository into the local working folder for development).

Each student in the group is responsible to develop one of the following functions. Each student must develop their codes in one of the following feature branches simultaneously:

|  |  |  |
| --- | --- | --- |
| **Feature branches** | **Tasks to do** | **Persons** |
| *feat\_PersonalInfo* | *i.e. need* a form to maintain *(add, update & delete) personal info.* | Sean |
| *feat\_ContactDetails* | *i.e. need a form to maintain (add, update & delete) contact Details* | David |
| *feat\_Appointments* | *i.e. need a form to maintain (add, update & delete) the appointments.* | Timmy |
| *feat\_ShoppingList* | *i.e. need a form to maintain the shopping list* | Steven |

\*\*Maintain means insert, update and delete the records with the corresponding database table. You also need to take care of the referential integrity of the table structures.

Tasks:

**SECTION A. (Team work)**

1. List and describe briefly for three Agile methodologies are common used in the Software development industry

* Scrum
* Product owner works with the team through a Product Backlog
* Deliver potentially shippable increments of software through successive Sprints.
* Product Backlog consists of features, bug fixes
* Extreme Programming (XP)
* Delivers software quickly for when requirements change continuously.
* Feature-Driven Development(FDD)
* Consists of five basic activities (Developing overall model, Develop feature list, Plan by feature, design, Regular builds)
* Built in two week iterations

1. State which methodology you will use for the Start\_Finance project and justify why you choose this methodology.

* We will be using Scrum due to its nature of flexibility that allows teams to work together efficiently.
* It’s a simple framework with rules that are easy to understand.
* Takes a big project and breaks it down into manageable user stories, defining each users role through the development cycle.

1. List and describe briefly three Project Management Software for software development projects.

* Trello
* An online application that allows a user to create lists on a board.
* A visual means for a team to work on a project together
* Atlassian Jira
* Issue tracking product
* Allows bug tracking
* Allows agile project management
* Microsoft Project
* Project managements software
* Developing schedules
* Assigning resources to tasks
* Tracks progress
* Manage budget
* Analyse workloads

1. State which project management software you will use for the Start\_Finance project and justify why you choose this software to use.

We chose to Trello because it is free to use, intuitive and meets our demands. Trello allows groups to collaborate on projects and track progress of the workload.

1. List and describe briefly three different source control software which are commonly used in the software development industry.

* Git
* Open-source version control system that allows a team to track changes in source while developing software
* Apache Subversion
* Open-source software versioning and revision control system
* Can maintain current and previous versions of files
* Mercurial
* Revision control tool supported on Windows and Unix-like systems

1. State which source-control system you will use for the Start\_Finance project and justify why you choose this system to use.

We are using Git because it is a reliable open-source project that uses the largest host of source code in the world, GitHub, with over 37 million users.

1. List and describe three collaboration software which are commonly used in the Software development industry.

* Trello
* An online application that allows a user to create lists on a board.
* A visual means for a team to work on a project together
* Git
* Open-source version control system that allows a team to track changes in source while developing software
* Slack
* Cloud-based set of collaboration software tools
* Collaboration hub for a team to work together

1. State which collaboration software you will use for the Start\_Finance project and justify why you choose this system to use.

We are using Git and Trello because they are open-source, popular software that will allow our team to collaborate on our project and track our workload.

1. With the Start\_Finance project requirement specifications, create a **project plan** with the major tasks to complete the development of the application. In the project plan, include the following items:

* Project members and their roles

Steven Frankling – Git Master

David Harms – Software Developer

Sean Daly – Software Developer

Timothy Till – Software Developer

* Start date and end date

2/09/2019 – 16/09/2019

* A list of major activities

Personal Info

Contact Details

Shopping List

Appointments

* How often the iteration activities

Weekly meetings

1. The product owner has specified that the source codes will be source controlled using Git so that the future release and maintenance can be tracked. He aims to use the Git local repository distributed for individual development and use the GitHub repository to centralise the version control of the source code. All individual development must be on the feature branches. The program codes on the feature branch must be reviewed by another developer before merging back to the master branch.

Write the workflow of the source-control procedures to complete the Start\_Finance project.

* Assign team members
* Set up Git repository
* Set up project management software (Trello)
* Set up initial team meeting
* Assign tasks to individual members
* Team meetings

**SECTION B. (Team Work)s**

1. Setup the GitHub project with the collaboration environment:

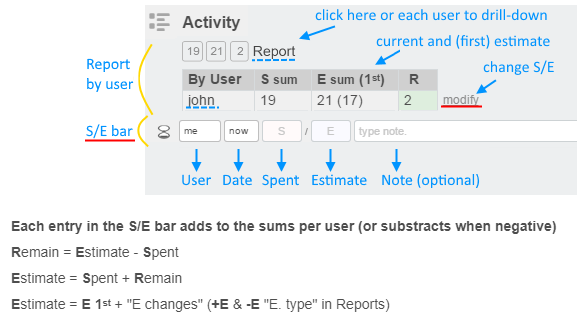
* Each group need to setup the project in GitHub as **Tafe19S2xx**
* The group leader must make sure the initial program runs in a local workstation before synchronising to the GitHub repository.
* The group leader should commit and push the initial C# initial application files into the GitHub repository as the original master.
* Add all contributors to the GitHub project.
* Each group must invite your lecturer (**tafesakt**) as one of your collaborator.
* Setup the repository with appropriate ***.gitignore*** pattern before the development starts
* Include a README.md file.
* Include a LICENSE.md file.
* Create Wiki pages to include the information of application definition, glossary of terms, member structures etc.
* Create an Official Website. Link this to your GitHub
* Set up Issues & labels (open / close etc.)
* Use Fork/Pull requests (invite collaborators)

For submission, capture the screen shots of the GitHub initial setup with the collaboration environment. Make sure that those screen shots are pasted into the final report for submission.

1. Setup the Trello project with the collaborative environment:

* Each group need to setup the project (Board) in Trello as **Scrum19S2xx**
* Add all members to the project.
* Each group must invite your lecturer (**auslauxx@yahoo.com**) as one of your member.
* Add the **To Do** list, **Doing** list, **Review** list and **Done** list to the **Board**.
* Enter the **To Do** list with the **major activities** completed on **SECTION A 4**.
* Break down the major activities into Cards. To each Card, add the following items:
* Checklist
* Label
* Due Date
* Attachment (if any)
* Allocate member to the Card

\*\*Note make sure that the due dates, **Estimate** are added to the Cards.



For submission, capture the screen shots of the Trello Project when it is initially setup with the collaboration environment. Make sure that those screen shots are pasted into the final report for submission. You also need to submit the C# codes for marking.

**SECTION C: (Team work & Individual Assessment)**

The following tasks are to be completed on **every Monday** once the project is started.

1. **(Team Work)**

Once the project has been taken place, **on every Monday**, the group will meet to discuss the progress and adjust the plan with the following:

* Move the Card to the appropriate stage
* Adjust the due date of the Cards
* Add or remove member to the Cards
* Add or remove the checklist

\*\*Note make sure that you add the **Spent** are added to the Cards.

Compare the plan with the previous Monday plan, **summarise** the major differences in the final report in that week.

For submission, capture the screen shots of the Trello Project as the evidence of the project plan has changed according to the group meeting. Make sure that the screen shots are pasted into the final report for submission.

1. (**Individual assessment**)

Individual student is responsible to develop one of the following functions using the source control system. Each student must develop their codes in one of the following feature branches simultaneously:

|  |  |
| --- | --- |
| **Feature branches** | **Tasks to do** |
| *feat\_PersonalInfo* | *i.e. need* a form to maintain *(add, update & delete) personal info.* |
| *feat\_ContactDetails* | *i.e. need a form to maintain (add, update & delete) contact Details* |
| *feat\_Appointments* | *i.e. need a form to maintain (add, update & delete) the appointments.* |
| *feat\_ShoppingList* | *i.e. need a form to maintain the shopping list* |

In the GitHub repository, on Monday, Individual student needs to capture the screen shots for the following:

1. The **Revision Graph** that shows the master branch & feature branches
2. Use the **Show log** to display the revision of the master and the feature branches.

For submission, capture the screen shots as evidence for ensuring the code is correctly entered into the source-control system. Pastes the screen shots in the final report.

3. (**Individual assessment**)

In the GitHub project, **on Monday**, capture the issues raised during the week by team members. Every team member must respond to the issues by replying the issues and act accordingly to resolve **issues** raised.

Member failing to initiate or respond to the issues will be marked fail unless has evidence of showing the **collaboration communication**.

For submission, capture the screen shots as evidence for resolving issues by collaborative efforts. Pastes the screen shots in the final report.

4. **(Individual assessment)**

Once the **feature branch** has been completed, Individual member need to merge successfully with **feature branch** back to the master branch & push to the GitHuB. Resolve any conflict (if any) during the merging process.

For submission, capture the screen shots as evidence for successful resolving the conflicts. You also need to submit the C# codes for marking.

5. **(Team work)**

Group members demonstrate your work on Session 9 (16/09/2019) to your lecturer. You need to explain clearly the process of your development in the context of revision number, branching, merging, tag or release and patch to your lecturer. The collaborative communication between members must also show to your lecturer.

*For your submission:*

* *Submit the final version of the C# codes checked out from the master branch for marking.*
* *The group leader is responsible for uploading the files & report to Moodle.*
* The final report must include all team member names and their roles.
* The final group report must have the name of the GitHub project name of Trello project name.
* The individual work with screen shots will be attached as part of the group report. Also *Submit the final version of the* ***C# codes*** *checked out from the branch you have developed for marking.*
* Make sure that the lecturer is a contributor and team members in the GitHub and Trello projects.
* *Put all screen captures during your development with branching & merging. Write documentation report with these screen shots so that your lecturer can trace what you have done.*
* *Record your revision graph with revision number (hash index). This document must be made available for download.*

**SECTION D - Research Questions (Individual Work)**

1. List the six principles of project management in the Project Management Body of Knowledge (PMBOK). Describe how these six principles can be applied to the Start\_Finance Project.
2. Describe the main activities in the planning, coding and testing stages in the software development life cycle.
3. List 3 reasons why software specifications are important for software development.
4. List different methods (i.e. types) of version control system.
5. List 3 reasons why version control is important to software development.

**Merit point: (1 merit point will be given for the group)**

Demonstrate the final product to the lecturer. In the demonstration process, group members are able to describe clearly about:

* development strategy
* the version control processes
* adapting the plan with backlogs and rescheduling
* review the history of the codes developed