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| CS3215 Proposal |
| SyncSharp – A free sync tool for tertiary students |
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1. **INTRODUCTION**
   1. **Context of proposal**

This proposal is written in response to develop a file synchronization tool for CS3215 - Software Engineering Project module.

* 1. **Current situation**

Currently, freely available sync tools in the market require installation which may considered as a hassle to some users.

* 1. **Problems and Needs**

It is common for students to work on similar files in multiple locations. This posed a serious issue in data management which requires file synchronization on multiple copies of files on different locations to keep the copies up to date. The simplest method is manual synchronization which has some problems: Users must manually keep track the states of each file and this method is highly error-prone. It also common for students to work on environment where the stations are tightly-secure and don’t have file synchronization application.

Students work with similar files on their personal laptops, home workstations, and school workstations. School workstations usually don’t have file synchronization application and do not allow user to install application freely.

*(From JiaYuan: Users who work with multiple computers may need to sync files through a intermediate device such as a thumb drive. Installing a program on a PC is not allowed if users are not granted administrative rights, and this could be a problem when user needs to sync files and there is no sync tool installed on the PC or on his immediate device. As such, there is a need for a sync tool that does not required installation and is capable of performing synchronization like any other sync tools. )*

1. **OUR PROPOSED PRODUCT**
   1. **Product Description**

The sync tool that our team is building is called SyncSharp, which allows users to sync files between multiple computers through an immediate device with no installation required. Once the user finishes his work, he just needs to plug in an intermediate device and the program will automatically sync the folders he specified (or if a user profile exists, the program will automatically read the profile and perform the sync job).

* 1. **Our Vision for SyncSharp**

Our team vision for this project is to build a synchronization tool which is easy to use and supports all the basic features of a typical sync tool. In addition, the tool must be reasonably fast and efficient to use.

* 1. **Product features**

The following

* Two way sync
* Support Windows Network Drive
* Compare folder/file
  + Name,
  + Size,
  + Last modified,
  + Attributes
    - Archive
    - System
    - Hidden
  + File content
* Filters - Include/exclude (regular expression)
* Log file (Most recent)
* File verification after sync (hashing), offer as a option
  1. **Advanced features**
* FTP (check whether got API)
* Scheduler (Permission)
* Notification(instant alert)/Email/SMS
* Encryption
* Versioning (different than syncing)
* Folder monitor (mode of syncing, partial, full one way)

1. **DOMAIN MODEL**



1. **USE CASES**



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| **Use Case Number: 01** | **Use Case Name: Compare Folders** |
| **Actors: Player, System** | |
| **Main Success Scenario:**   1. Player sets the source and destination directories to compare. 2. Player proceeds to compare the directories 3. System validates the input for source & destination 4. System begins to compare the directories 5. System proceeds to retrieve the contents of the directories 6. System performs source & target files matching 7. System report the differences found   **Extension(s):**  3a. Player provides invalid source or destination directory  3a1. System prompts an error message  Use case resumes from step 1.  5a. System does not have permission to access the file/folder  5a1. System will skip the file/folder and update the log file  Use case resumes from step 5. | |

1. **FEATURE LIST**
   1. **SyncSharp v0.0**

We plan to deliver the following features for SyncSharp v0.0:

* Create, edit and save synchronization profiles.
* Compare source and target directories.
* Perform 1 way synchronization between the source and target directories.
* Generate text log file after synchronization
  1. **SyncSharp v0.9**

For SyncSharp v0.9, we plan to incorporate the following features:

* Perform 2 ways synchronization between the source and target directories
* Define inclusion/exclusion filters
* Define copy/deletion rules
* Provide comparison options
* Provide byte by byte verification after synchronization is completed
* Smart sync
  1. **SyncSharp v1.0**

For SyncSharp v1.0, we plan to incorporate the following features:

* Fix Bugs
  1. **SyncSharp v2.0**

For final version of the product, we plan to incorporate the following features:

* Support file encryption/ decryption
* Backup to FTP server
* Sync files with a FTP server
* Versioning
* Support local network sync
* Backup files
* Restore backups

1. **GLOSSARY**

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| Term | Definition |
| SyncSharp | The name of our sync tool |
| 1 way sync | Update destination directory to have the same state as source directory |
| 2 ways sync | Update source and destination directories to have the same state |
| Differences window | Window form that displays the differences between the source & destination directories |
| Log files | A html or text files that records the operations perform in the synchronization process |
| Profiles | Configuration file that contains source & target information to be synchronized |
| Target | The destination directory to be sync or compared |
| Detector | The sub-system that detect changes from the source or destination directory |
| Reconciler | The sub-system that resolves conflicts between the source & destination directories |

Things to do:

Use case diagram

Use case description (5 more).

Domain diagram.

Gantt chart