Daniel Kerr, 6/6/17

Sigma seven Recruitment Technical test Question 1

My Initial thoughts were to use FileSystemWatcher to record file accesses. However, I don't think I can get user details with that approach. If it's a windows machine, I believe the administrator could set up auditing to record the necessary information and a report could be produced against this. I do not have the knowledge to write specification for this in the time allotted. Even without a DB, it may be worth setting up a web-service to record this information in some other form but the question seems fairly concise about which technologies are allowed and that it isn't on the list. So my solution is to:

1. Extend the "Update Datasets" application to leave a record, in a text file, on the GIS server when it (successfully) downloads a data package.

2. Create the new "Regenerate Mobile User Report" as requested.

**Extend the "Update Datasets" application to record doanlads**

The specification is clear that is downloading that is to be measured, rather than (for example) successfully decompressing. Hopefully there will be an existing "fileDownloadComplete" event that we can attach the new process. If no such event exists, give thought to introducing one. The point here is that we are introducing a new process involving writing to a remote server which can be slow and is a possible source of exceptions. This process should run on a seperate thread: it should not change the users current experience.A name for the process is "RecordDownload".

The main tasks are:

1. Confirm the existence of a text file on the server with name in the format datadownload\_*computername\_Username*.txt in a sensible directory e.g. c:\sigmaSevenReport. Each machine-user combination will write to an independent file. A single file could be used but this appraoch avoids the possibility of two people wanting to access it at the same time. Create the file if it does not exist.

**Note to reader: at this point my 90 minute was up (having already spent 46 minutes on question 2).**

2. Write the required data (username, computer-name, current date-time) to the file.

3. Close remote file. I don't believe it is required to inform the user of any of this.

**Create the new "Regenerate Mobile User Report"**

The specification says "component". For ease, create a new windows application with the functionality in a format that can easily be ported for use as component within an existing application.

On clicking the "**Regenerate Mobile User Report"** main steps are:

1. Check if a previous version of the report exists. If it does exist, rename it or delete according to standard practices. Create a new file (with the standard name e.g MobileUserReport.csv) and open it for writing

2. Loop through all the files c:\sigmaSevenReport. Read the last line of each and copy the line into MobileUserReport.csv. This may take some-time, so inform user of progress. It may be worth including some additional info such as column headers.

3. Close the file.

4. Help the user by spawning a new process to open the file with an application such as excel.

**Additional Objectives**

It would be worth having a list of all users - the customer is likely to be interested in users who have not updated.

The records of downloads seem unlikely to get too big but some consideration should be given to the scale requiring deleteing or backing up seperately.

**Note to Reader (2): I spent an additional 19 minutes writing the text after Note to Reader (1). I continued to think/type as quickly as I could. I have not gone back and corrected things.**