System Design Document - Yellow Project

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1 Introduction

1.1 Purpose of the System

In **AUTOSYS**, the main client is the **SystemReviewClient** who needs to set up a **STUDY** consisting of one or several **PHASES**. A **PHASE** will consist of one or more **TASKS** which need to be completed before moving on to the next **PHASE**. The **StudyParticipants** can work in different **ROLES** which we anticipate will be either as **REVIEWER** or **VALIDATOR**. Also the **StudyParticipants** will be working together on a **STUDY** in **TEAMS**, but multiple teams will not be working on the same **STUDY**. Furthermore **TEAMS** working on the same **STUDY** will be considered as one big **TEAM**.

1.2 Design Goals

- **Ease of use**:
  Goal: it should be relatively easy to setup a study configuration because it makes up the foundation that all study work processes rely on.

  Trade-off: the end user may have a low level of computer expertise potentially resulting in the wrong setup of a study. This can happen because the user cannot find or access the ressources required for setting up a study or they become frustrated if they have to go through many windows. However, these usability traits should not compromise with the system functionalities. The system must still be sufficiently complex in order to provide a variety of ways to setup the configuration. A primary focus on usability traits has been chosen due to the scope and time span of the project. This design goal is a refinement of the non-functional requirement "usability" in Requirement Analysis Document (section 3.3.1).

- *High Reliability*: To make it possible to work with data even if you have no internet connection. Auto save of configuration data.

- *Scalability in terms of the amount of users and concurrent studies*:
  Goal: The response time of the system must not degrade dramatically with the number of these users.
  Trade-Off: The system is used by multiple teams with several users working on different studies. The work carried out by these users could be done concurrently and so the system will have a big workload when multiple requests are send to the server. Since the users need the study data quickly to conduct their research, it will be cumbersome if the users have to wait for a long time to get the data. Because of this the system will have to make the data quickly accessible to the users. But still the system must do this in a way which takes memory into account, so it does not require to many database resources.

- *High performance for data request processing time*: To ensure a quick and responsive user interface, we will provide a fast and responsive database which facilities quick searches. To achieve this, we will implement a E/R entity frame work database which will utilize Microsoft's .NET framework to optimize database queries. This will let us take advantage of optimized queries and features implemented by Microsoft database experts. Furthermore we plan to implement a feature which will store the result of large queries for quick access for later use. This will allow us to respond hastily to large queries which we previously have found the answer too. To avoid delivering stored data which has changed since the last request, we will only implement this feature on data which is less likely to change. To ensure we the user will receive data which is up to date, the user will be given the option re-download the data.

2 Current Software Architecture

3 Proposed