IN2030 WORK-BASED PROJECT

Software Design Document

Document

HR TRACK SYSTEM

| Version | Primary Author(s) | Description of Version | Date Completed |
| --- | --- | --- | --- |
| First Draft | Mayur Patel | All sections being Filled.  Updated use-case descriptions and diagrams in appendix from requirements specification document. | 05/05/22 |

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# Introduction

## 1.1 Introduction to System Design Document (SDD)

The System Design Document documents and tracks the information required to effectively define architecture and system design in order to give the implementation/development on the architecture of the system to be developed.

Design document are used to develop a system incrementally and iteratively within the changes of the technology.

## Scope of this document

The customer and the user for the system are the employees of the AbilityNet.

## 1.3 Overview of document

The document provides detailed design of the system in both static view and dynamic view.

The static view is document through the design-class diagram, Database design, and GUI visual design.

The dynamic view is documented through the sequence diagrams, statechart diagrams, Activity diagrams (through GUI visual design), and a representative set of SQL statements.

# Changes from the requirement specification.

## Changes

There is a small change from the general scenario in the requirements specification.

The change is detailed below:

The administrative team no longer has access to the project. As a result they are no longer an actor within the system. As such the onus of creating a project relies on the consultant himself.

The system no longer will generate a Unique ID which is emailed to the planners. Instead the consultant will download the report (pdf, word and html) and upload it on the AbilityNet SharePoint. From there the planners would pick up the project and forward it to the client.

The login credentials of the system would be shared by both the consultant and the senior consultant, who will be doing the QA of the project. This development was directed from the line manager, who wanted a synchronous system to the one we currently use for a WCAG Audit.

The time mechanism, which would delete the project after 30 days is also removed.

## **2.2 Effects of the change in general scenario**

The effects of the changes in general scenario are demonstrated through the changes in use-case descriptions and diagrams. (See Appendix for the updated des-case descriptions and diagrams.)

They changes are extensively detailed in the appendix- history of documents section.

# Design Classes

## 3.1 Package view:

A package view is provided which shows the association of the classes between the different packages. Only classes with association are shown, as this is just to highlight the association.

Each package is then further magnified to demonstrate the full design class for the particular package.

Diagram

Description automatically generated

## **3.2 Design class diagrams**

### User

Diagram, schematic

Description automatically generated

### **Report**

Diagram, schematic

Description automatically generated

### GUI

Diagram

Description automatically generated

# Sequence diagrams

## Login

Chart, box and whisker chart

Description automatically generated with medium confidence

## Generate Report

A picture containing graphical user interface

Description automatically generated

## Calculate score

**A picture containing table

Description automatically generated**

# State-chart diagrams.

## Report

Diagram

Description automatically generated

## Download Report

A screenshot of a computer

Description automatically generated with medium confidence

## QA process

A screenshot of a computer

Description automatically generated with medium confidence

# Database design

## 6.1 Entity-relationship diagram

ER diagram is a type of flowchart that illustrates how different entities relate to each other within a system.

**Diagram

Description automatically generated**

## **6.2** Relational database schema

The SQL dialect used is MYSQL.

CREATE TABLE statements for ALL tables in the database. The primary key and foreign key(s) are appropriately identified.

create table Report(

Project\_name varchar (255) primary key,

Project\_consultant varchar (255),

pdfReport varbinary (700),

wordReport varbinary (700),

HTMLReport varbinary (700),

Status varchar (255),

Score decimal,

foreign key (Project\_consultant) references Consultant (Name));

create table Consultant(

Name varchar (700) primary key,

Username varchar (255),

Password varbinary (700));

create table Sharepoint(

AN\_code varchar (255) primary key,

Review\_name varchar (255),

foreign key (Review\_name) references Report (Project\_name));

create table Netsuite(

NS\_code integer primary key,

SharepointLink varchar (255));

## 6.3 Representative set of operational SQL statements.

### Insert statements

insert into Report values

('Newham borough council HR', 'Daniel Roy','pdf1.pdf','word1.docx','html1.html','Active','74'),

('Natwest HR','Mayur Patel','pdf2.pdf','word2.docx','html2.html','Active','80'),

('UWL HR','Jenna Moran','pdf3.pdf','word3.docx','html3.html','completed','60'),

('ActiveNet HR','Lucy Love','pdf4.pdf','word4.docx','html4.html','pending','0'),

('Aviva cars HR','Max Mayer','pdf5.pdf','word5.docx','html5.html','completed','90'),

('Stagecoach HR','James Baverly','pdf6.pdf','word6.docx','html6.html','completed','100');

insert into Consultant values

('James Beverly','JamesB279@','BeverlyJames22!'),

('Max Mayer','MaxM279@','MayerMax22!'),

('Lucy Love','LucyL279@','LoveLucy22!'),

('Jenna Moran','JennaM279@','MoranJenna22!'),

('Mayur Patel','MayurP279@','PatelMayur22!'),

('Daniel Roy','DanielR279@','RoyDaniel22!');

insert into Sharepoint values

('5473 AL20', 'Newham borough council HR'),

('5763 GB78', 'Natwest HR'),

('5048 FH12', 'UWL HR'),

('5990 DL50', 'ActiveNet HR'),

('5333 AB20', 'Aviva cars HR'),

('5805 XY47', 'Stagecoach HR');

insert into Netsuite values

(0001,'https://abilitynet900.sharepoint.com/:w:/r/sites/AccessibilityReports/\_layouts/15/Doc.aspx?sourcedoc=%7B7D58D9FB-4968-4067-865B-10CB1B59BB68%7D&file=HSBC%20-%20Mobile%20Journey%20-%20Corporte%20Cards%20-%20Working%20Capital%20Solutions%20-%20Phase%202.docx&wdOrigin=OFFICECOM-WEB.MAIN.REC&ct=1651872703867&action=default&mobileredirect=true'),

(0002,'https://abilitynet900.sharepoint.com/:w:/r/sites/AccessibilityReports/\_layouts/16/Doc.aspx?sourcedoc=%7B7D58D9FB-4968-4088-865B-10CB1B59BB68%7D&file=HSBC%20-%20Mobile%20Journey%20-%20Corporte%20Cards%20-%20Working%20Capital%20Solutions%20-%20Phase%202.docx&wdOrigin=OFFICECOM-WEB.MAIN.REC&ct=1651872703867&action=default&mobileredirect=true'),

(0003,'https://abilitynet900.sharepoint.com/:w:/r/sites/AccessibilityReports/\_layouts/17/Doc.aspx?sourcedoc=%7B7D58D9FB-4968-4002-865B-10CB1B59BB68%7D&file=HSBC%20-%20Mobile%20Journey%20-%20Corporte%20Cards%20-%20Working%20Capital%20Solutions%20-%20Phase%202.docx&wdOrigin=OFFICECOM-WEB.MAIN.REC&ct=1651872703867&action=default&mobileredirect=true'),

(0004,'https://abilitynet900.sharepoint.com/:w:/r/sites/AccessibilityReports/\_layouts/18/Doc.aspx?sourcedoc=%7B7D58D9FB-4968-4060-865B-10CB1B59BB68%7D&file=HSBC%20-%20Mobile%20Journey%20-%20Corporte%20Cards%20-%20Working%20Capital%20Solutions%20-%20Phase%202.docx&wdOrigin=OFFICECOM-WEB.MAIN.REC&ct=1651872703867&action=default&mobileredirect=true'),

(0005,'https://abilitynet900.sharepoint.com/:w:/r/sites/AccessibilityReports/\_layouts/19/Doc.aspx?sourcedoc=%7B7D58D9FB-4968-4023-865B-10CB1B59BB68%7D&file=HSBC%20-%20Mobile%20Journey%20-%20Corporte%20Cards%20-%20Working%20Capital%20Solutions%20-%20Phase%202.docx&wdOrigin=OFFICECOM-WEB.MAIN.REC&ct=1651872703867&action=default&mobileredirect=true'),

(0006,'https://abilitynet900.sharepoint.com/:w:/r/sites/AccessibilityReports/\_layouts/20/Doc.aspx?sourcedoc=%7B7D58D9FB-4968-4022-865B-10CB1B59BB68%7D&file=HSBC%20-%20Mobile%20Journey%20-%20Corporte%20Cards%20-%20Working%20Capital%20Solutions%20-%20Phase%202.docx&wdOrigin=OFFICECOM-WEB.MAIN.REC&ct=1651872703867&action=default&mobileredirect=true');

### Update statements

update Consultant set Username = 'JMoran279@', Password = 'JennaMoran258!'

where Name = 'Jenna Moran';

update Report set Status = 'Completed'

where Project\_name = 'Natwest HR';

update Netsuite set SharepointLink = 'https://abilitynet900.sharepoint.com/:w:/r/sites/AccessibilityReports/\_layouts/15/Doc.aspx?sourcedoc=%7B36DB7819-A0F7-4491-BA37-75B9D70656A4%7D&file=5763%20-%20Desktop%20%26%20Mobile%202.1%20Web%20Audit%20AA%20of%2011%20pages.docx&wdOrigin=OFFICECOM-WEB.MAIN.REC&ct=1651875653889&action=default&mobileredirect=true'

where NS\_code = 0005;

### Delete statements

delete from Report where Project\_consultant = 'Jenna Moran';

delete from Sharepoint where AN\_code = '5990 DL50';

delete from Netsuite where NS\_code = 0004;

### Select statements

/\* 1. Select all the projects which has a score of more than 70 and is also completed(Status). List them by Project\_name and Project\_consultant \*/

SELECT distinct Project\_consultant, Project\_name

FROM Report

WHERE Score > 70

AND Status = 'completed'

order by Project\_consultant, Project\_name;

/\* 2. List the project name which is till in pending stage. \*/

select Project\_name

from Report

where Status is 'pending';

/\* 3. List for a project with score of more than 75 with it's project name and the consultant name who worked on it and their username, password and it's AbilityNet code for sharepoint. \*/

select Project\_name, Project\_consultant, Username, Password, AN\_code

from Report rt, Consultant cs, Sharepoint sp

where rt.Project\_consultant = cs.Name

and rt.Project\_name = sp.Review\_name

and score > 75;

# GUI Navigation (Screenshot layout) – Activity diagram

To represent GUI Navigation, the activity diagram is used alongside vertical swimlane.

## Login page GUI

When the user navigates to HRTrack web system, he is directed to the login page.

Diagram

Description automatically generated

## HR Report process

NOTE: The elements “create”, and “QA complete” are buttons. The input field for project name, and the rating dropdown button are required fields.

Diagram

Description automatically generated

## Download and upload project –

User needs to store the downloaded report from the system within the AbilityNet SharePoint.

This diagram models the user journey to download the report and uploading the report within the SharePoint.

Diagram

Description automatically generated

# Appendix (History of document)

## Updated use-case diagram

Diagram

Description automatically generated

**What:** UniqueID use-case has been changed. This is due to changing the boundary from email to AbilityNet SharePoint (SharePoint is where the project will be stored). As such the planners can directly access from the SharePoint and can easily forward it to the client.

The actor administrator is no longer in the scope, so removed it.

Time no longer needed, as a result removed it. Time is no longer needed as the project is going to be uploaded to AbilityNet SharePoint.

New secondary actor “SharePoint” is added to compensate the above.

**Why:** Due to changing nature of the requirements and to be synchronous with other system.

In other system at AbilityNet, project is stored on SharePoint, and then from their the planners picks it up and sends it to the client.

**How:** The extension point for “SubmitReportReady” is changed to “ReportComplete”. This is to reflect the removal of time actor and replaced by SharePoint.

The actors administrator is removed and actors Email and time are replaced completely.

## Updated use-case specifications

|  |  |
| --- | --- |
| ID: TM01 | Use case: CalculateScore |
| Brief description:  The Headline review uses traffic light system to generate score across five pages. The red means 0, yellow means 1 and green means 2. This is scored across 10 different indicators of WCAG such as Headings, Keyboard accessible, etc with a maximum score of 100 and minimum score of 0. | |
| Primary actors:  Consultant, Senior Consultant (QA) | |
| Secondary actors:  NetSuite | |
| Preconditions:  1. Headline review track is operational; the primary actor has logged in. | |
| Flow of events:  1. Consultant activated the functionality for calculating a score for the accessibility of website.  Extension point: SubmitQA, makeAmends  2. Consultant works on the assigned project.  3. The consultant opens a new project on system and gives a name to the project and then starts the testing of the 5 pages which were selected for testing.  4. While testing the consultant does the following:  4.1. The consultant selects one of the following traffic lights i.e., red, yellow, or green for the 10 different indicators.  5. The consultant then completes the testing across all 5 pages whilst adding pictures on to the system supporting the reasoning behind the rating.  6. The consultant then submits the project for QA on NetSuite.  7. The senior consultant then picks up the QA and make any necessary amends in terms of wordings or pictures and if necessary, informs the consultant to make any necessary changes in ratings.  8. If it is necessary the consultant then provides the necessary required and submits the project for QA on NetSuite, this cycle runs until the QA submits for Report complete. | |

|  |  |  |
| --- | --- | --- |
| ID: TM01 | | Use case: SubmitQA |
| Brief description:  The Headline review uses traffic light system to generate score across five pages. The red means 0, yellow means 1 and green means 2. This is scored across 10 different indicators of WCAG such as Headings, Keyboard accessible, etc. with a maximum score of 100 and minimum score of 0. Once score is calculated the consultant submits for QA. | | |
| Primary actors:  Consultant, Senior Consultant (QA) | | |
| Secondary actors:  NetSuite | | |
| Preconditions: (extension point: SubmitQA)  1. Headline review track is operational; the primary actor has logged in. | | |
| Flow of events:  1. Consultant has been able to generate a total score for 5 pages.  2. Consultant then submits for QA.  3. The consultant opens a new project on system and gives a name to the project .  4. The senior consultant then picks up the QA and make any necessary amends in terms of wordings or pictures and if necessary, informs the consultant to make any necessary changes in ratings.  5. If it is necessary the consultant then provides the necessary required and submits the project for QA on NetSuite, this cycle runs until the QA submits for Report complete. | | |
| Postcondition:   1. Project is complete and the planners picks up the report complete and generate a report. | | |

|  |  |  |
| --- | --- | --- |
| ID: TM02 | | Use case: generateReport |
| Brief description:  Once the report is marked as report complete. The planners pick up the report and activates the generate report functionality, which generates a report combining pdfReport, HtmlReport and WordReport. | | |
| Primary actors:  Consultant, Senior Consultant | | |
| Secondary actors:  SharePoint, NetSuite | | |
| Preconditions:  1. Headline review track, the project is ready and marked as report complete. | | |
| Flow of events:   1. The report is marked as report complete. 2. The consultant pick up the report and generate the report(download) and then uploads the report on SharePoint 3. The planners use the SharePoint to forward it to the client. | | |
| Postcondition:   1. Project marked complete and planners send the report and store in their individual database. | | |

|  |  |
| --- | --- |
| ID: TM01 | Use case: SubmitReportReady |
| Brief description:  The senior consultant submits the report when complete and marks it complete and it generates a Unique ID which then allows the planners to access the report and generate copies of it in different forms. | |
| Primary actors:  Senior Consultant | |
| Secondary actors:  NetSuite | |
| Preconditions:   1. Headline review track is operational; the primary actor has logged in. | |
| Flow of Events:   1. Once the consultant has completed writing the report, the senior consultant QA’s the project and after any amends are required submits the report on the system as report ready to deliver.   Extension points: ReportComplete   1. Once the report is marked as completed, the consultant downloads the report and uploads on the AbilityNet SharePoint. The planners then use this to forward to the client. | |
| Postconditions:   1. The report is generated in different forms by the senior consultant or planners. | |
| Alternative Flows:   1. None | |

Changes in the use-case specification.

1. Use-case: CalculateScore - The secondary actor planner is removed. As they are out of scope for this use-case now due to changing requirement.
2. Use-case : SubmitQA - The secondary actor planner is removed. As they are out of scope for this use-case now due to changing requirement.
3. Use-case: generateReport – The secondary actor planner is replaced by SharePoint. The Flow of events has been changed, where previously UniqueID was generated. That is no longer the case and the generated report by any consultant or senior consultant needs to be stored on SharePoint. This change is due to changing requirement and scope of the system.
4. Use-case: SubmitReportReady – The secondary actors planner are removed. The flow of events has been changed, where previously UniqueID was needed. That is no longer the case, and the planners can pick up the report directly from the SharePoint.