



SWE30010

HRM PROPOSAL FOR GEMADEPT

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SPRINT BACKLOG

This table below shows a portion of our sprint backlog, specifically that of sprint one.

No.	Item	Business Value (1 least – 10 most)
F1	Product UI/UX Design	7
F2	Website for HRM	9
F3	HR database schema design	8
F4	Manager Portal	7

1. Sprint Backlog Item to develop

The **Website for HRM** item will be the product with the highest prioritization and will be the first thing to be produce in the meantime. Its steadfast development is due to its business value and importance I.e., being the backbone for other functions to be developed upon.

In SDLC, quality separate the different between a still-developing product and a fully functional one. Hence, it is important to define a quality checklist to ensure the sprint product can perform well in the real world.

2. Software Quality

Definition of Done

For a product to be shippable or done, it must satisfy the stated and implied needs of its various stakeholders, and thus provides value. In this sprint, for the website to be considered done, its functional requirement should be fulfilled. All core functionalities of the website can work efficiently and do not have any severe errors that corrupt the system. Core functionalities include:

- Biometric Attendance Tracking
- Employee information Management
- Payroll Integration
- Reporting and Analytics
- Time checks and attendance
- Performance and Development tracking
- Integration with third party services
- Basic website capability

These definitions should be the base to build the quality checklist on.

ISO25010 Software Quality Model

Using the ISO25010 model, and the desired core functionalities of the website listed above, we can select the characteristics which can be the most significant to our product, and in this case, we will implement the Functional Suitability characteristic and its Functional Correctness sub-characteristic to build our quality checklist on.

To create a checklist that can present how well the functional correctness of the actual build can be, we will be applying the SMART framework again to help us measure our own capabilities and devise specifics metrics and thresholds to assist in designing the quality checklist.

Applying the elements, we can finalize a quality checklist for our website as follow:

Functional Suitability – Functional Correctness		
No.	Metrics	Thresholds
1	Individually, each calculation module (e.g., payroll, time worked, rating) should have little to no calculation errors.	< 5% calculation error
2	When a calculation is made in any one of the modules, the related attribute in other modules must update correctly.	< 5% calculation error
3	Employee's information updates should correctly appear on the screen.	100% accuracy
4	Employee's information should be recorded correctly within the database	100% accuracy
5	The dashboard chart should be used properly to show clear details of employee's information.	Clear visualization with < 5% deviation
6	The database searching and filtering options should return the correct result.	95% accuracy
7	Biometrics token must be correctly verified and apply for the correct personnel	95% accuracy
8	Data conversion of the fingerprint to be stored in the database must be accurate for each of the employees.	< 5% fingerprint data conversion error
9	During the account registration process, important fields such as name, password, and email are required.	100% of the information is fulfilled
10	Most authentication attempts must be successful	90% success rate
11	The website must pass many test cases that prevent XSS and exploiting URLs.	98% test case passed

12	Proper input sanitization should be checked to prevent code injection or unintended characters. Additionally, handling of special characters, whitespace, and input encoding should be validated.	100% input fields are protected
13	Form submission and data transmission should be tested to ensure that data is correctly processed and sent.	95% test case passed
14	Error messages should be displayed when invalid data is entered, providing clear instructions on how to correct them.	100% accuracy
15	Links to different functionalities should be correct.	100% accuracy
16	API connection to other services (i.e., existing ERP, Google sign in, Google sheet, etc.) should have little error	< 5% API errors
17	The website should display and run as expected on various browsers.	98% of browser tested must passed

Figure 2.1: Functionality correctness checklist

3. Metric and Threshold values rationale

We based our checklist around the functional correctness; hence, it will be heavily focused on the accuracy and correctness of each of the HRM website's core capabilities in addition to every website's basic functionality.

Justification for each of the items mentioned in the checklist are as follow:

Functional Suitability – Functional Correctness	
No.	Rationale
1	As a reporting platform, calculation must be as precise as possible, hence calculation errors or formula errors must be minimal.
2	Like the previous metric, this one is concerned with calculation taken from various models. And the result of this calculation must not have calculation error larger than 5%
3	Functions that record data from the main website must update the database correctly 100% of the time to aid in various other functions.
4	On the webpage, information of the employees must be displayed in full and without errors. This will not only help with visualization but also aid in modular calculations.
5	Functions that visualize or report data of employee

6	The function that queries the data from database to the website should be able to accurately get the correct result not only for displaying but for other modules calculation as well.
7	The fingerprint token of each employee should record correctly as set up in the database.
8	To track the employees' time and attendance, it is important that their fingerprint data is collected correctly with little to no errors.
9	For employee's data to not be missed or not recorded, all the important field are required.
10	The authentication functions must work 90% of the time in order for people to access their information.
11	XSS and URL exploitation are serious and pose significant threat to the data and privacy of the website, hence, this feature must be thoroughly tested.
12	All the input fields of the website must be able to deal with wrongful data to prevent SQL injections and other breaches.
13	Data transmission from one layer (front, back, database) must be checked and ensure the accuracy of data.
14	Should error arise when using the website, error handling prompt must pop up for users or developer to fix the issue.
15	Ensure all the link to different function points exactly to the specified function.
16	Integration of other services should be available most of the time and should only be down (intentionally or unintentionally) when traffic is low.
17	To ensure smooth operation on different choice of browsers, this website and its functionalities should be tested on various browsers.

Figure 3.1: Functionality correctness checklist

By checking the quality check list after the sprint or product is done, we can have a total view of the progress of our project, enabling us to make more informed decision and improving the product as needed.