SWE30010

HRM PROPOSAL FOR GEMADEPT

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HRM WEBSITE QUALITY CHECKLIST

	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

Quality Control Planning

To ensure that our product meets the expected quality, there needs to be a plan of action for each of the quality. Hence, we will be using two methods namely Risk Assessment and Eisenhower Matrix to justify and devise an in-depth plan.

1. Ensuring Product meets the Quality defined

To ensure that each quality stay within the predetermined quality aspect and don't exceed the threshold, they are paired with a matching task.

No.	Plan
Functional Suitability – Functional Correctness	
1	Insert 50 rows of employees with varying degrees of different parameters to observe whether the calculation function is correctly configured.
2	Use a wide range of values for the employee parameters on individual modules and observe whether the final calculation is correct.
3	Verify the displayed information on the website against the database
4	Make 20 employees updates on the website and observe their data in the database
5	Use a wide range of value on the employees' parameters and observe whether the chart function is correctly configured
6	Use the search function with a variety of keywords and random words to note the displayed information.
7	Create 20 samples of fingerprint and create 20 employee accounts according to the prints, then observe it in the database
8	Create 25 fingerprints on the reader and observe whether the website made a mistake when transferring fingerprint data to the database.
9	Check whether all input field are programmed with the "required" tag in the HTML code
10	Create 20 employees accounts with different emails to log into the system
11	Create 20 test cases that simulate XSS, or URLs exploiting and test the website against them.
12	Test all input field on the website against 20 different test cases of varying error
13	Test form submission input on the website against 20 different test cases and note any difference between the website and the database
14	Wrongly execute any input and observe whether error messages appear
15	Click on all the tabs presented on each page of the website and verify them against the sitemap.

16	Intentionally disrupt network connectivity during an ongoing API request and verify that the system handles the timeout or connection failure gracefully
17	Run the HRM website on Opera, Chrome, Coc Coc, Firefox, Brave, and Edge, and note any differences or issues.

Figure 1.1: Plan for each quality

2. Risk Assessment

We can rank the most significant attributes while considering the associated risks by using the quality checklist to ascertain whether each quality meets any risk criteria. These risks will be ranked from least to highest influence on business functions, with a distinction made between risks with less impact, like browser compatibility, and those with greater impact, like SQL injection.

As part of this categorization process, assigning each attribute to the relevant risk category lays the groundwork for action planning. There are three different priority levels: Normal, Important, and Urgent. Urgent tasks are prioritized, followed by Important tasks, and finally Normal ones.

We can make the following risk assessment chart by following the item numbers on the checklist as a reference:

		Severity				
		Negligible	**Minor**	**Moderate**	**Significant**	**Severe**
Likelihood	**Very Likely**		9, 14	3		
	Likely		1, 15	6	16	7, 12
	Possible	17	5	13	2, 10	11
	Unlikely		8			4
	Very Unlikely					

Figure 2.1: Risk assessment chart

3. Planning Quality Review

We can efficiently design and plan tasks to maintain the quality of the HRM website thanks to the risk assessment chart. Then we can use Trello dashboard to help with the management and organizing of all required actions. With the aid of this dashboard, we will be able to organize and classify jobs in a methodical manner according to the Risk Assessment Chart, guaranteeing thorough monitoring and efficient implementation of quality assurance procedures for the HRM website.
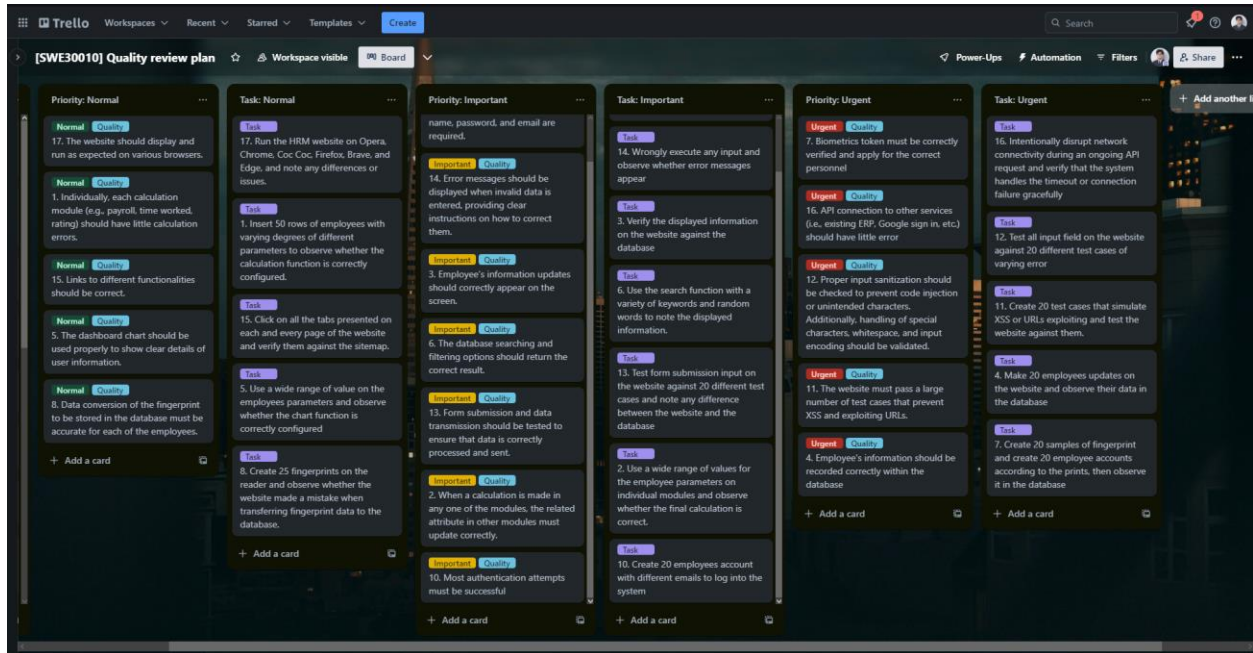

Figure 3.1: Quality Review Plan Trello board

To improve clarity, we will group tasks and qualities according to the color of the risk assessment into three separate groups, as mentioned in the section above. Green-colored tasks and attributes will be categorized as Normal. Yellow and Orange range represent tasks that are more than minor but still lesser than severe; these tasks are labeled Important. Severe tasks and qualities will be categorized as Urgent and will don the color red.