Management System

HUMPTY DUMPTY PLAYSCHOOL

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Section 1

Group No	Group System/Name
2	Humpty Dumpty Playschool Management System

No.	Student no.	Student name	% of contribution	Signature
1	218083949	[redacted]	20	[redacted]
2	218033639		20	
3	218013453		20	
4	216033944		20	
5	218080595		20	

Presentation link:

https://youtu.be/2t0J8uRuCRk

Section 2

Name of System

Humpty Dumpty Playschool Management System

Objectives of System

Front-end System

The front-end system aimed to condense and organise client records in the preschool. It also allowed for the management of the business finances, the processing and retrieval of pupil and staff data as well as providing an area where the daily planning and general organisation of the preschool could be carried out (Notes and Contacts).

The system needed to provide an efficient and convenient way of generating reports for pupils and generating monthly summaries of the finances in the business. This was achieved through the use of Crystal Reports and custom reporting templates designed specifically for the foundation phase of a child. The administrator needed this environment to be secure (login feature) and provide a quick and easy way to learn the system (Integrated Help option)

Website

The website provides a platform for the parents and public to interact with their data and view basic business information. Using a website for the parent functions means that they can access their data and perform several functions anywhere they are. Such functions include viewing their child's progress reports, logging a COVID screening for each day, editing their biographical details, and sending and viewing previous messages sent to staff members. Ultimately, it needs to be an interface between some of the admin functions and the parents.

Additionally, the site also has an admin section for the staff to perform most of the actions that can be performed in the front-end system. While as a result of open-ended interpretation of the M4 specification, and not actually as pertinent to the M4 requirements as we came to discover, it is nonetheless a valuable part of the site.

Critical Success Factors (Front-end Processing)

Basic transaction processing was achieved in five main aspects (Pupils, Staff, Finances, Notes and Contacts, Reports). These transaction processes involved CRUD to store and modify the records of the playschool safely and efficiently.

In terms of the usability, vibrant colours on the interface were used, and generally a simple layout that was easy to understand. Uniformity was adhered to throughout the system, and the user generally remembered how to use features without having to memorise the process. The user never got trapped into error states, as we observed them using the system on a regular basis which persuaded them to continue using the system.

Numerous try/catch statements were used to compensate for any errors that occurred, and both client and developer tested this on a regular basis. A basic help system was incorporated into the system to help the client learn about the system easily, simple buttons and commands were incorporated into the interface. If the user encountered an area of uncertainty, we offered a thorough breakdown of how the features of the system worked.

A simple design coupled with a help feature ensures that all users are able to quickly learn the functions of the front-end system.

In terms of business intelligence reports, the front-end system provided a monthly income breakdown (integrated using Crystal Reports) as well as detailed monthly summaries of all payments made in a particular month. Lastly, progress reports were used for each child in the preschool, and these could be printed out and given to the parent. The owner of the preschool found this to be useful as previously, she had to type a unique report for each learner, and this would waste valuable time. The owner could also view which months brought in the most income for the business and from this she could analyse when to increase or decrease prices in the business.

Front-end Errors Not Resolved

The front-end system successfully carried out its objectives, and has no known unresolved errors remaining.

Critical Success Factors (Website Processing)

The site is fully connected to and complements the same database as the front-end system. Because we have the whole database context available, it is trivial to be able to produce the same type of reports that the front-end system is able to produce. Because of some added complexity since M3, we are actually able to produce more reports and complete the business processing capabilities.

In regard to the site usability, our priority was ensuring that the screen contents would scale as best as possible regardless of the screen resolution. We used Bootstrap and HTML divs on our main pages to ensure this would be done as seamlessly as possible. We also used feedback elements such as confirmation messages and button presses to provide feedback to the user. Another aspect is using session variables to store database table information in order to reduce network activity and thus reduce loading loads as much as possible, resulting in a better user experience.

Security was implemented primarily by checking that when a page that requires admin privileges loads, it checks foremost if the session variable for a logged in admin is set. If not, it immediately stops loading and redirects the user to the login page. We also used prepared statements when using most SQL queries in order to prevent SQL injections, as the built-in prepared statements automatically cleanse input to make it safe for database queries.

The site is capable of producing a cross-tab financial report from a given year, a parameterized COVID screening report that highlights high temperatures, a drill-down progress report of the child's progress in a given semester in a year, as well as several small bar graphs to complement these reports along the way. There are one or two mini summarizing features alongside these reports as well.

Website Errors Not Resolved

Error Type	Description	Follow-up action
Level 3	There may be edge cases where some parameters may be incorrectly passed to a web page and it will not be able to respond as expected. There are also edge cases where the session may expire after inactivity in the admin panel and the system would fail to recall certain information.	These cases are highly unlikely and will only happen in certain cases. It is tedious to weed out all of them, so some may remain. However, they will not result in a critical failure or crash and will resolve upon renavigation.
Level 4	There may be some inconsistent design choices such as slightly different table or padding styles among all the pages.	These have been identified and resolved as much as possible, but it is possible to still have a rogue element of this somewhere.

Response from Client/Mentor

From the mentor, R Raghavjee:

"The system fulfils the primary objectives and does facilitate the core processing that was laid out in the beginning. It can be further built upon to accommodate more features that would also assist in reducing paperwork, like keeping track of the staff absenteeism over a given time and incorporating automated checking for items like monthly fee payments. The current finance and milestone progress reports that can be produced are certainly valuable. The website also simplifies communication and processes between the school and parents and complements the front-end system.

The system feels production ready and based on my initial usage, it could definitely be implemented for usage in the daily running of the school. The time spent on the making this system has not been wasted."

Reflections and Lessons learnt

Jason – "*I primarily learnt about the context of business processing in website technologies. I am familiar with other technologies such as PHP and JavaScript in a different context, so seeing how the ASP.net platform facilitates simpler technology to perform business intelligence processing was a new perspective for me. The new platform does however feel significantly more bloated. In future we should refine our initial scope as much as possible to avoid scope change as the development cycle progresses."*

Aadila – "*I was very fortunate to have a team that was well organized and was willing to check the development of my portion as well as help with figuring out ways to solve problems that we had encountered. We worked well as a team and divided the work so that everyone had an input. I have learnt that it takes time to create a system with all functionality and how each segment fits together and worked off each other to get the system we currently have. Improvements made was adding the COVID19 screenings which was not in the front-end, but we managed to add it into the website.*"

Ismaeel – "*General feeling of satisfaction. This year brought upon many challenges for every student, but I think given the circumstances we were in, we achieved the objectives that we set for ourselves on the project. We learnt to work cohesively as a unit regardless of working remotely and I think it is something not a lot of students will get to experience in the future. I would improve on the aspect of reporting in future, it was something new to all of us and I feel that with time it is something that can be improved on as it is a powerful ideal in the Information Technology sphere."*

Luthando – "*Most of the time during software development, agile development cannot be avoided these days, and a single solution can be re-evaluated and improved iteratively, collaboration also makes project execution more feasible in a given time frame. That was true for this project. Engaging on a project pushes one to integrate different technologies at their disposal. On our project we could have added a scheduling subsystem, where an admin user gets to schedule the working dates and hours for each staff, or have the process automated by the system based on staff availability, we could have also added payment information like how much each staff member gets paid based on their position on the company."*

Yukayle – "*With regards to the outcome of the project, I am happy with the way we performed under the circumstances as it was not an easy task to undertake. (Not being able to meet in person to portray our views on different matters, being on different schedules, among various other difficulties). I have learned communication skills beyond belief as prior to the task I only ever had performed in individual tasks.*"