

SWE20001: Managing Software Projects

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Chosen Scenario:

Project Name: Sales Management system for Ragib Televisions (SaleManSys)

Company: Ragib Televisions

Software: Sales Management System (SaleManSys)

Ragib Television is a new television store that has been selling televisions of various sizes locally in Riversdale.

At this moment in time, we are noting down all of our sales details on paper and then creating a trend chart by hand to find the televisions currently in demand. Unfortunately, doing so is becoming too slow for our needs, making it difficult for us to stock up the required televisions in time. Furthermore, as our customer numbers increased, we have also noticed an increase in problems where pages would either get lost or have the same information recorded twice, producing an unreliable chart.

So, we are now looking for software that will streamline the recording of the sales records for us and also help us to find the trend of different products over weekly, monthly and yearly time periods. It must also have a simple Graphical User Interface to ensure that our employees can easily use the system.

Background:

This project is to develop a software to, Ragib Televisions (from further onwards mentioned as client), in order to help them store, manage and analyze sales records. The company bases its business activities at Riversdale where they sell Televisions to their customers. After further analysis we have identified the following problem in the current implementation.

- Inefficiency of activities due the use of paper-based system
- Less accuracy and consistency in storing and analyzing sales details
- Failing to maintain proper system to control television stock

The proposed software will allow the client to store, manage and analyze sales records whilst reducing paper-based system, saving costly overhead. It will also allow the client to keep a higher consistency and accuracy of the records, compared to the current system. This software will be user friendly in manner that current staff will be able to adopt the new system with little or no training provided which have been desired by the client

Scope:

The SaleManSys software will hold the data about the sales (inputted by the employees) in a manner similar to the current paper-based system, but with relevant relationship between all tables (television details table, customer details table, sales details table) so that each relevant records from multiple tables can be accessed and verified instantly (no duplication in data stored).

Since, it will use a Graphical User Interface to do this; the user friendly interface would end up reducing the training time needed for the employees when implementing the system in client's corporate environment.

With the given software, the company can note the trends at different time periods (weekly, monthly and yearly) with the push of a button and thus quickly can adjust their stock of televisions to suit with the customer's demands.

Deliverables and product backlog schedule:

Deliverables:

With the new SaleManSys software, user manuals for operations and troubleshooting will be provided containing all the necessary steps for each scenario and technical details for troubleshooting purposes. Also, when the system will be deployed in the business environment, a brief training session will be provided for employees, which would cover all the functionalities of the system (noted in details in the product backlog below)

Product Backlog: (and explained business value):

1. **Creation of Customer Table:** To keep track of customers details which includes their names, address, email and phone numbers. This is quite beneficial for the company as they can use these information later on to provide targeted advertisement to their customers in the future and further improve their business worth. Also, it is needed to properly set up the database relationship to ensure duplicate sales records do not exist.
2. **Creation of functionality to add records in Customer Table:** To add a customer's details mentioned beforehand. The benefit to the company is same as that noted before in point 1.
3. **Creation of functionality to view records in Customer Table:** To view a customer's details mentioned beforehand. The benefit to the company is same as that noted before in point 1
4. **Creation of functionality to edit records in Customer Table:** To modify a customer's details mentioned beforehand to suit for scenarios like change in customer's address or phone number. This helps business keep track of their customers.

5. **Creation of functionality to delete records in Customer Table:** To delete a customer's details to suit for scenarios where employee had made a mistake in customer creation (like making the same customer twice) and thus give them the chance to remove it.
6. **Creation of Television Table:** To keep track of television details this includes their name, productId, price and stock. This is beneficial for the company as it can use it to keep track of their stock and know when to replenish it.
7. **Creation of functionality to add records in Television Table:** To add a television's details mentioned beforehand. The benefit to the company is same as that noted in point 6.
8. **Creation of functionality to view records in Television Table:** To view a television's details mentioned beforehand. The benefit to the company is same as that noted in point 6.
9. **Creation of functionality to edit records in Television Table:** To modify a television's details mentioned beforehand to suit for scenarios like change in television's price or stock. This helps business keep track of their products.
10. **Creation of functionality to delete records in Television Table:** To delete a television's details to suit for scenarios like company no longer plans to sell a certain television or even keep it in stock due to lack of demand.
11. **Creation of Sales Table:** To keep track of sales records and observe trends. This is beneficial for the company as they can use this to keep track of customer demands and thus can use it to determine which televisions to keep and how much stock to keep for them.
12. **Creation of functionality to add sales records in Sales Table:** To add the sales' details mentioned beforehand to help the company make the analysis
13. **Creation of functionality to view all records in Sales Table:** To view the sales' details mentioned beforehand to help the company make the analysis
14. **Creation of functionality to filter viewed records in Sales Table with respect to time period (weekly):** To view the weekly sales data so that the company can use to make a weekly trend chart for their products and thus keep their customer demand in mind while stocking up their televisions
15. **Creation of functionality to filter viewed records in Sales Table with respect to time period (monthly):** To view the monthly sales data so that the company can use to make a weekly trend chart for their products and thus keep their customer demand in mind while stocking up their televisions

16. **Creation of functionality to filter viewed records in Sales Table with respect to time period (yearly):** To view the yearly sales data so that the company can use to make a weekly trend chart for their products and thus keep their customer demand in mind while stocking up their televisions
17. **Creation of functionality to edit records in Sales Table:** To edit the records in the Sales table. This is useful for the company as if the employee made any mistakes in inputting the sales record, they can quickly fix it using this functionality before using the data in their analysis.
18. **Creation of functionality to delete records in Sales Table:** To delete the records in the sales table. This is useful for the company for scenarios where the employee had mistakenly inputted the same sales data twice and thus can use this functionality to delete the duplicate record before using the data in their analysis.
19. **Creation of Admin Table:** To keep track of all employees with admin privileges in their system. This ensures that only the employees in the company can access the system and no one else
20. **Creation of functionality to add Admin Accounts to Admin Table:** To add admin accounts to the system. This is useful for the company as they can decide which employees should have access to the system and add their details here.
21. **Creation of functionality to view Admin Accounts to Admin Table:** To view admin accounts in the system. This is useful for the company as they can check which employees currently have access to the system and see their details here.
22. **Creation of functionality to edit Admin Accounts to Admin Table:** To edit admin accounts in the system. This is useful for the company as they can decide which employees should have access to the system and can update their details here.
23. **Creation of functionality to delete Admin Account to Admin Table:** To edit admin accounts in the system. This is useful for the company as they can decide which employees should have access to the system and can remove employees who have left their company
24. **Creation of functionality to authenticate Admin Accounts:** To enable the admin accounts to access the system itself and input in all sales, item and customer details in the system. This is useful for the company as it provides security as only authorized admins can access the system input in data to customer, television and sales.

Product Backlog Schedule:

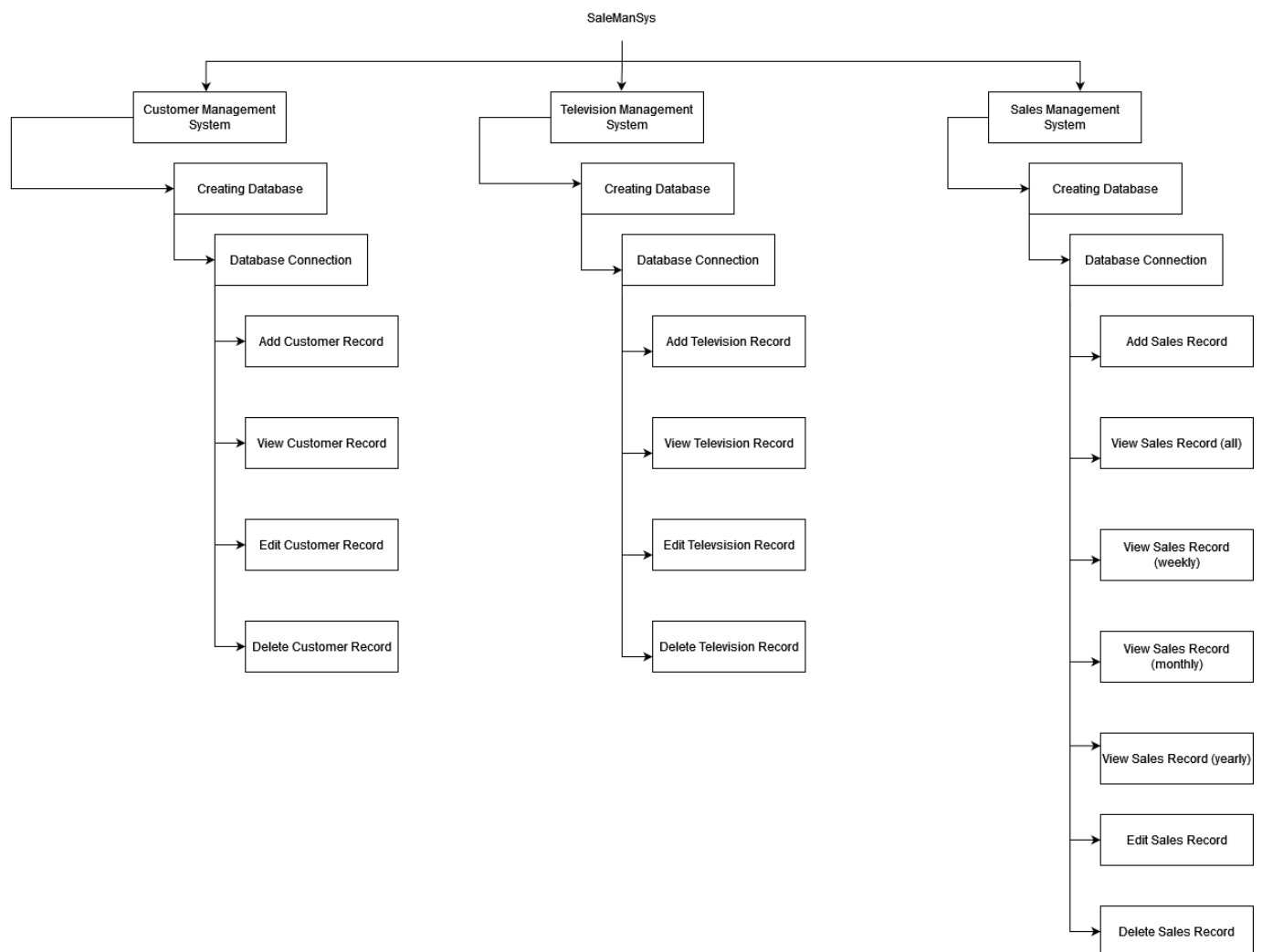
No.	Item	Dependencies	Business value (1 least – 10 most)	Release Schedule (Sprint 1 or 2)
1	Creation of Customer Table		9	1
2	Creation of functionality to add records in Customer Table	1	7	1
3	Creation of functionality to view records in Customer Table	1	7	1
4	Creation of functionality to edit records in Customer Table	1	7	1
5	Creation of functionality to delete records in Customer Table	1	7	1
6	Creation of Television Table		9	1
7	Creation of functionality to add records in Television Table	6	7	1
8	Creation of functionality to view records in Television Table	6	7	1
9	Creation of functionality to edit records in Television Table	6	7	1
10	Creation of functionality to delete records in Television Table	6	7	1
11	Creation of Sales Table	1,6	10	1
12	Creation of functionality to add sales records in Sales Table	9	8	1
13	Creation of functionality to view all records in Sales Table	9	8	1
14	Creation of functionality to filter viewed records in Sales Table with respect to time period (weekly)	9	9	1
15	Creation of functionality to filter viewed records in Sales Table with respect to time period (monthly)	9	9	1
16	Creation of functionality to filter viewed records in Sales Table with respect to time period (yearly)	9	9	1
17	Creation of functionality to edit records in Sales Table	9	8	1
18	Creation of functionality to delete records in Sales Table	9	8	1
19	Creation of Admin Table		9	2
20	Creation of functionality to add Admin Accounts to Admin Table	16	7	2

21	Creation of functionality to view Admin Accounts to Admin Table	16	7	2
22	Creation of functionality to edit Admin Accounts to Admin Table	16	7	2
23	Creation of functionality to delete Admin Accounts to Admin Table	16	7	2
24	Creation of functionality to authenticate to Admin Accounts	16	10	2

The WBS (Work Breakdown Structure) and the estimates for Sprint-1:

The WBS:

Here I have decided to use the product based approach to ensure that no product planned to be developed in sprint 1 is missing from the task breakdown structure/chart.



The WBS tasks in list form:

1. Create Database and table for Customer Management
2. Create Connection of the Database for Customer Management
3. Creation of functionality to add records in Customer Table
4. Creation of functionality to view records in Customer Table
5. Creation of functionality to edit records in Customer Table
6. Creation of functionality to delete records in Customer Table
7. Creation of GUI for adding, viewing, editing and deleting records in customer table from client side
8. Create Database and table for Television Management
9. Create Connection of the Database for Television Management
10. Creation of functionality to add records in Television Table
11. Creation of functionality to view records in Television Table
12. Creation of functionality to edit records in Television Table
13. Creation of functionality to delete records in Television Table
14. Creation of GUI for adding, viewing, editing and deleting records in television table from client side
15. Create Database and table for Sales Management
16. Create Connection of the Database for Sales Management
17. Creation of functionality to add sales records in Sales Table
18. Creation of functionality to view all records in Sales Table
19. Creation of functionality to filter viewed records in Sales Table with respect to time period (weekly)
20. Creation of functionality to filter viewed records in Sales Table with respect to time period (monthly)
21. Creation of functionality to filter viewed records in Sales Table with respect to time period (yearly)
22. Creation of functionality to edit records in Sales Table
23. Creation of functionality to delete records in Sales Table
24. Creation of GUI for adding, viewing all, viewing (weekly), viewing (monthly), viewing (yearly), editing and deleting records in sales table from client side

Now considering Ideal Time Ideal Effort and Effective effort, we can obtain the following table:

[Note: here I am using the fact the each person will only be able to productively work for 70% of their time and using that in my calculation of real effort for each of the leaf nodes.]

[Note: the leaf node numbers/ task numbers refer to their task numbers and names in the list above and I have not written their names as it would be too long and their brief abbreviation would be confusing]

Task no (following the list created above)	Ideal Time	Ideal Effort	Real Effort	Justification
1	60 mins	60mins	120mins	<p>Here I am creating the database and table for the Customer Management in C# and then verifying that it works by using a test case table (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 60mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>
2	30 mins	30mins	60mins	<p>Here I am creating the connection to the database for the Customer Management in C# and then verifying that it works by using a test case table and querying for viewing data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>
3	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to add customers to the Customer table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>

4	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to view customers in the Customer table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>
5	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to edit customers in the Customer table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>
6	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to delete customers to the Customer table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>
7	60 mins	60mins	120mins	<p>Here we are creating the GUI feature for adding, viewing, updating and deleting the Customers on the Client side in C# and then verify that it works by using a test case data (this will be removed</p>

				<p>later on after troubleshooting is over).</p> <p>Although this should ideally take 60mins; considering the fact that we are working in C# and the different types of errors that usually pop up, we have decided to keep some leeway time for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>
8	60 mins	60mins	120mins	<p>Here I am creating the database and table for the Television Management in C# and then verifying that it works by using a test case table (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 60mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 1, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
9	30 mins	30mins	60mins	<p>Here I am creating the connection to the database for the Television Management in C# and then verifying that it works by using a test case table and querying for viewing data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 2, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>

10	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to add televisions to the Television table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 3, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
11	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to view televisions in the Television table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 4, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
12	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to edit television in the Television table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p>

				<p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 5, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
13	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to delete television from the television table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 6, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
14	60 mins	60mins	120mins	<p>Here we are creating the GUI feature for adding, viewing, updating and deleting the televisions on the Client side in C# and then verify that it works by using a test case data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 60mins; considering the fact that we are working in C# and the different types of errors that usually pop up, we have decided to keep some leeway time for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>

				<p>[Note: But since we have done similar task for task no 7, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
15	60 mins	60mins	120mins	<p>Here I am creating the database and table for the Sales Management in C# and then verifying that it works by using a test case table (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 60mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 1, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
16	30 mins	30mins	60mins	<p>Here I am creating the connection to the database for the Sales Management in C# and then verifying that it works by using a test case table and querying for viewing data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 2, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
17	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to add sale records to the Sales table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is</p>

				<p>over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 3, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
18	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to view all sales records in the Sales table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 4, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
19	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to view weekly sales records in the Sales table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there</p>

				is also the fact that each person will only be effectively working 70% productively.
20	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to view monthly sales records in the Sales table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>
21	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to view yearly sales records in the Sales table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p>
22	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to edit sales in the Sales table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for</p>

				task no 5, it might end up taking half time in reality. But that is something that must be verified first during this sprint]
23	30 mins	30mins	60mins	<p>Here I am creating the functionality and logic to delete sales record from the sales table in C# and then verifying that it works by using a test data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 30mins; considering the fact that the project is being done in C# and the different types of errors that usually pop up, some leeway time has been kept for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 6, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>
24	60 mins	60mins	120mins	<p>Here we are creating the GUI feature for adding, viewing (all), viewing (weekly), viewing (monthly), viewing (yearly), updating and deleting the televisions on the Client side in C# and then verify that it works by using a test case data (this will be removed later on after troubleshooting is over).</p> <p>Although this should ideally take 60mins; considering the fact that we are working in C# and the different types of errors that usually pop up, we have decided to keep some leeway time for troubleshooting and research. Furthermore, there is also the fact that each person will only be effectively working 70% productively.</p> <p>[Note: But since we have done similar task for task no 7, it might end up taking half time in reality. But that is something that must be verified first during this sprint]</p>

Total Effective Effort: **30 hrs** (=1800 mins).

Now following pair programming (to reduce impact of “truck factor”), we get **60 hrs** (=2* total effective effort).

Now a Team of 4 people would need 64hrs in a 2 week sprint time. So having **60 hrs** team time is adequate for this sprint as then some leeway time can be kept in case any unforeseen accident happens and causes delay in the project.