System Proposal

The Allstars

INFO 361 Spring 2020

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Business Case

Description:

As music lover and entrepreneur, Mary Violette has been struggling to juggle her work life due to her frequent visits to attend record fairs and private auctions. We, The Allstars have come up with a solution to help Ms. Violette run her record business more smoothly.

Our system will be able to manage inventory, record employee schedules and improve website capabilities. Some major functional requirements we included is the system's ability to track information such as inventory and sales, making sure the system is easy to access in store for all employees and creating a website that is supported by all web browsers with a user-friendly search and toolbar.

With our improved system Ms. Violette can continue to focus on growing her clientele and record business while running more efficiency. Our system can pay for itself in just over a year.

Original System Request

Project Name: River City Records Information System

Project Sponsor: Mary Violette, Owner

Local music lover and entrepreneur, Mary Violette, recently opened a store to sell new and used records and also serve as a consignment shop for used stereo equipment. She started her business last summer by hiring a few part time employees so she could still attend record fairs and private auctions and found herself quickly overwhelmed trying to juggle everything. After an initial period of struggling to learn about the business and trying to make a profit, things are now beginning to look up but she has realized that a suitable information system would allow her to better manage her business. Mary had taken some information system courses in college and realized that she could benefit by taking advantage of some of the newer technologies available. She has asked your team to help develop a system to meet her business needs.

Business Need:

What is the purpose of the system?

Manage inventory and equipment maintenance, manage auction and employee schedules, transaction processing, financials and accounting, keep track of business contacts (vendors, repair services) and customers (for marketing), and improve web presence. Ms. Violette needs a system that can help her organize her work environment.

Functionality: Facilitate and manage the business operations in order to:

- Schedule and manage work requests/events
- Manage employees
- Manage financials and accounting
- Keep track of inventory, equipment repair/maintenance
- Keep track of business contacts and customers
- Manage advertising/web presence
- Take advantage of newer technologies

Business Value:

What value will the new system add?

Improve inventory tracking to increase revenue, increase customer base, improve efficiencies and maintain good relations with contacts and customers. Building retention with customers in a business is vital to the success of the company. Incorporating all of the components of the former statement will allow Ms. Violette to maintain good customer relations.

Scope Statement:

What functional requirements need to be met in this project?

The functional requirements of this project include managing inventory in regards to the distribution/sale of records, as well as inventory stocking. Ms. Violette also wants time to attend auctions to expand her business, so she needs a system to organize employee schedules. Since Ms. Violette recently opened her store, she will need to understand and be comfortable with managing the financials and accounting of her business, so we will provide assistance with that transition as well. Customer service is the most important aspect of a business, and since we will be purchasing systems for Ms. Violette, we will be able to spend more time developing, maintaining, and growing her customer base. In addition, Ms. Violette wants to create a website to showcase her merchandise. We will be paying a developer to create a user-friendly website; in addition, the developer will have to teach Ms. Violette and make sure she is comfortable managing the website on her own. Ms. Violette also has a Facebook account for her business, so we will help her connect her website and products to her account so that she broadens her customer base.

Technical Feasibility Study:

What are the risks and measures on the business and how do we address them?

Some technical issues Ms. Violette may face when having her own website, are server crashes. If the website is down because of high user volume, this is considered a high measure impact. During this time the customer's will be unhappy that they cannot finish their order, and there may be a lot of glitches or problems that could lead into inventory systems not responding and selling items that are limited in quantity to multiple customers

The website being down could be because of multiple reasons, such as maintenance. Other than coding issues, there are two main reasons for a website to crash, this could be the host servers being down or receiving a huge influx of online users. If the servers are down because of the host servers having issues, this is a medium measure impact.

When it comes to a new inventory system issues can arise if employees do not put in the correct amount of inventory, because of this the employees should check from time to time to make sure the inventory matches with the inventory online. Having trouble with inventory is considered a low measure impact because this issue could easily be solved with a user refund, although the customer may not be satisfied.

Organizational Feasibility Study:

Will the current business operations be able to implement and use the new system?

There are not many employees involved with the company, therefore implementing the new system should not take very long. However, there may be some resistance to learning a new system. The main risk that could be faced is if the website is not user friendly, or that people would not visit or use the website as expected. However, this can be corrected by ensuring that the website has all sources available for the customers.

There are occasional employees who may not understand the benefits to changing systems and may reject learning the new protocol. This can happen with longtime or elderly employees. Employees to want to be bothered learning a new system when there wasn't a problem with the original.

With the implementation of the new system, business operations will not only embrace the new system, but will also make the system more easily manageable. The new system includes the implementation of a website that will bring more attention to the store. This will increase productivity and sales and bring in new customers. In addition, it is beneficial to the customer as instead of taking time and calling and using the time of the employees in the store, they can easily find the information online. The new system is also low risk.

High Risk – Medium Risk – Low Risk

Economic Feasibility Study:

Can Ms. Violette afford the system? (Conduct a cost/benefit analysis)

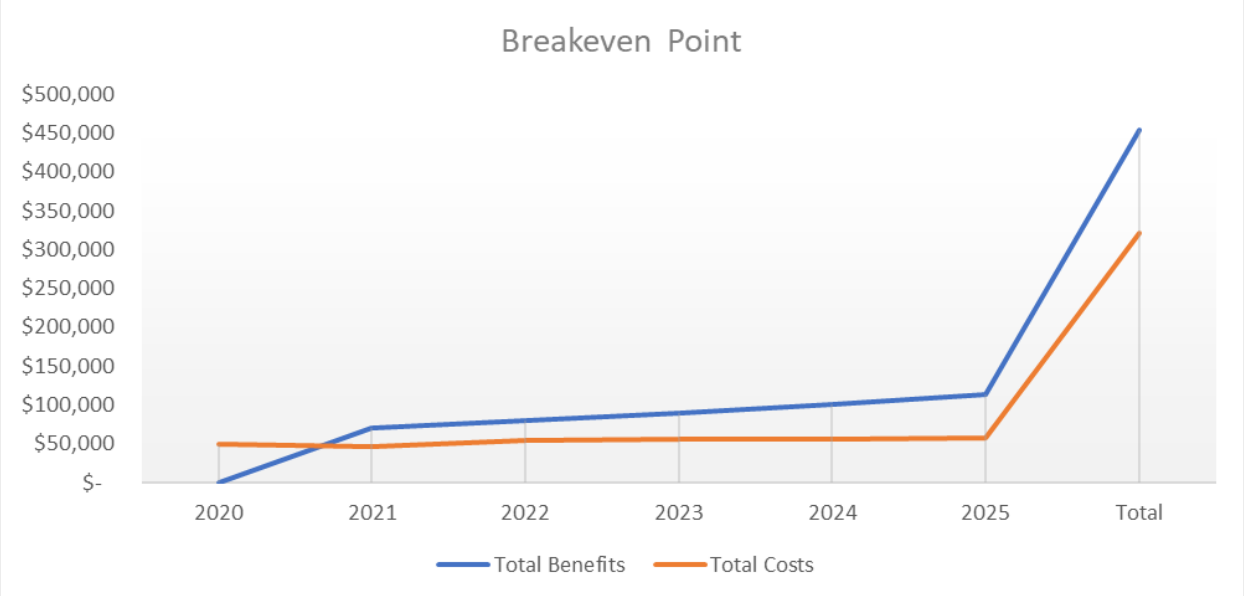
Most of the costs will be the physical purchasing of the systems and consulting and web design fees. We expect the initial development costs to be roughly $16,600. This can be considered high risk if Ms. Violette cannot afford these costs up front and needs to take out a loan in order to do so.

There will still be operational costs such which owner must keep up to date in order to keep the business running, such as internet and cloud services. Because the system is an OTC package, monthly fees will apply

If a loan is needed, her benefits will still outweigh her costs within the year due to low interest rates. She will steadily gain a profit over the next several years with an estimated return of 41.37% from implementing this system.

There will be many tangible benefits to purchasing and implementing the newer system such as reducing loss in inventory, better website advertisement and increased sales. We can also expect some intangible benefits such as improved customer service and better supplier relations.

	2020	2021	2022	2023	2024	2025	Total
Total Benefits	***$ -***	***$ 70,800***	***$ 80,152***	***$ 90,374***	***$ 100,256***	***$ 112,956***	***$ 454,538***
Total Development Costs	***$ 16,600***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ 16,600***
Total Operational Costs	***$ 33,200***	***$ 46,220***	***$ 53,940***	***$ 55,510***	***$ 56,880***	***$ 58,350***	***$ 304,100***
Total Costs	$ 49,800	$ 46,220	$ 53,940	$ 55,510	$ 56,880	$ 58,350	$ 320,700
Net Benefits	$ (49,800)	$ 24,580	$ 26,212	$ 34,864	$ 43,376	$ 54,606	$ 133,838
Return on Investment							***41.73%***
NPV of Net Benefits(@ 4% discount rate)							***$ 106,753***



High Risk – Medium Risk – Low Risk

Requirements Definition and Work Plan

Functional Requirements	Description	Examples
Information Oriented	The system must be able to track information such as inventory and sales	● The system must allow the user to track inventory, equipment and repairs ● The system must record customer sales ● The system should be able to store customer information for a reasonable amount of time (2-3 years)
Process Oriented	The system must process customer transactions	● Manage customer transactions in store and online ● Be able to process customer requests ● Reliably transmit data between the user and the device
Report Data	The system will be able to report data back to the users	● The system will give a monthly report on employee work hours ● Give a monthly report on the costs and sales of the business
Accessible (In-Store)	The system will be for all employees to use and input information	● Allow employees to input data about customer contacts ● Allow employees to input information about available schedules
Accessible (website)	The website will be available to all customers to review merchandise, compare and buy products	● The website will showcase new and current merchandise ● Access to contacting the store ● User-friendly search and toolbar ● Website will be available in all languages

Nonfunctional Requirements	Description	Examples
Operational	The system must be able to operate in different settings/situations, and must also be easy to use for Ms. Violette and her employees	● The system must be sustainable through server malfuntions ● The system must have high data capacity ● The system should be compatible with any web browser
Performance	The system must process customer transactions	● Manage customer transactions ● Be able to process customer requests
Security	The system will be able to report data back to the users	● The system will give a monthly report on employee work hours ● Give a monthly report on the costs and sales of the business
Political and Cultural	The system must function within the realm of the business. The system must follow the laws and regulations required.	● The system should be able to distinguish between US currency and currency from other nations ● Personal information will be protected by U.S Law

Gantt Chart

Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
Manually Scheduled	**Develop Team Charter**	**4 days**	**Mon 1/27/20**	**Thu 1/30/20**		
Manually Scheduled	Coordinate meeting to learn about each other	4 days	Sun 1/26/20	Wed 1/29/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	Creat Google Doc to share for Team Charter	2 days	Sun 1/26/20	Mon 1/27/20		Arathi
Manually Scheduled	Input notes to doc individually	2 days	Tue 1/28/20	Wed 1/29/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	Combine notes into draft document	4 days	Sun 1/26/20	Wed 1/29/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	Submit our Team Operating Principles	1 day	Wed 1/29/20	Thu 1/30/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	**Develop Business Case**	**4 days?**	**Wed 2/5/20**	**Sun 2/9/20**		
Manually Scheduled	Team Meeting on how we divide and concur	1 day	Wed 2/5/20	Wed 2/5/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	Create a Google Doc	1 day	Thu 2/6/20	Thu 2/6/20		Nikki
Manually Scheduled	Create our Business Need and Scope	2 days	Fri 2/7/20	Sun 2/9/20		Arathi
Manually Scheduled	Explain the Business Value	1 day	Fri 2/7/20	Fri 2/7/20		Arathi
Manually Scheduled	Define Scope of the Business Case	1 day	Fri 2/7/20	Fri 2/7/20		Arathi,Nikki
Manually Scheduled	Conduct a Feasibility Study	2 days	Sat 2/8/20	Sun 2/9/20		Nikki
Manually Scheduled	Report on a Technical Study	1 day	Sat 2/8/20	Sat 2/8/20		Vincent
Manually Scheduled	Research Economic Study	2 days	Sat 2/8/20	Sun 2/9/20		Chad
Manually Scheduled	Review draft after group meeting	1 day	Sat 2/8/20	Sat 2/8/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	Submit Business Case	1 day	Sun 2/9/20	Sun 2/9/20		Chad

Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
Manually Scheduled	**Requirements Definition and Work Plan**	**6 days?**	**Mon 2/10/20**	**Mon 2/17/20**		
Manually Scheduled	Team Meeting on how we divide and concur	1 day	Mon 2/10/20	Mon 2/10/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	Create a Google Doc	1 day	Mon 2/10/20	Mon 2/10/20		Arathi
Manually Scheduled	Document Functional Requirements	2 days	Tue 2/11/20	Wed 2/12/20		Vincent
Manually Scheduled	Document Non-functional Requirements	2 days	Wed 2/12/20	Thu 2/13/20		Nikki
Manually Scheduled	Create Project Plan	1 day	Thu 2/13/20	Thu 2/13/20		Chad
Manually Scheduled	Create Deliverables in our doc individually	2 days	Fri 2/14/20	Mon 2/17/20		Arathi
Manually Scheduled	Design a Gannt Chart	2 days	Fri 2/14/20	Mon 2/17/20		Chad
Manually Scheduled	Review and Submit Requirments Definition and Work Plan	1 day	Mon 2/17/20	Mon 2/17/20		Chad
Manually Scheduled	**Develop Use Case**	**5 days**	**Tue 2/18/20**	**Mon 2/24/20**		
Manually Scheduled	Collectively determine what Use Cases to focus on	1 day	Tue 2/18/20	Tue 2/18/20		Chad,Nikki,Arathi,Vincent
Manually Scheduled	Generate a working Google Doc for notes about the Use Cases	1 day	Tue 2/18/20	Tue 2/18/20		Arathi
Manually Scheduled	Develop an Event-Response List	2 days	Wed 2/19/20	Thu 2/20/20		Vincent
Manually Scheduled	Declare Triggers and Actors	3 days	Thu 2/20/20	Mon 2/24/20		Nikki
Manually Scheduled	Develop Pre and Postconditions	3 days	Thu 2/20/20	Mon 2/24/20		Arathi
Manually Scheduled	Label Descriptions and Identifying Input and Outputs	3 days	Thu 2/20/20	Mon 2/24/20		Chad
Manually Scheduled	Combine documents into a PDF	1 day	Sat 2/22/20	Sat 2/22/20		Arathi,Chad
Manually Scheduled	Submit Use Cases	1 day	Mon 2/24/20	Mon 2/24/20		Chad

Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
Manually Scheduled	**Data Flow Diagrams**	**5 days**	**Tue 3/3/20**	**Mon 3/9/20**		
Manually Scheduled	Determine what Use Case to focus on	1 day	Tue 3/3/20	Tue 3/3/20		Chad
Manually Scheduled	Build the Contextx Diagram	2 days	Wed 3/4/20	Thu 3/5/20		Vincent
Manually Scheduled	Data Flow Diagram POS	2 days	Thu 3/5/20	Fri 3/6/20		Chad
Manually Scheduled	Data Flow Diagram Time Clock System	2 days	Fri 3/6/20	Mon 3/9/20		Vincent
Manually Scheduled	Data Flow Diagram Website	2 days	Fri 3/6/20	Mon 3/9/20		Nikki
Manually Scheduled	Level 0 Data Flow Diagram	3 days	Thu 3/5/20	Mon 3/9/20		Arathi
Manually Scheduled	Create Layout into fragments	1 day	Sat 3/7/20	Sat 3/7/20		Chad
Manually Scheduled	Review and Submit Data Flow Diagrams	1 day	Mon 3/9/20	Mon 3/9/20		Chad
Manually Scheduled	**User Interface Design**	**4 days**	**Mon 4/6/20**	**Thu 4/9/20**		
Manually Scheduled	Meet group to agree upon use cases that we will use for DFD	1 day	Mon 4/6/20	Mon 4/6/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	Create a working Google Doc for notes on the DFD elements	1 day	Tue 4/7/20	Tue 4/7/20		Nikki
Auto Scheduled	**Develop prototypes for:**	**3 days**	**Mon 4/6/20**	**Wed 4/8/20**		**Arathi,Chad,Nikki,Vincent**
Manually Scheduled	Point of Sale	2 days	Mon 4/6/20	Tue 4/7/20		Chad
Manually Scheduled	Website	2 days	Tue 4/7/20	Wed 4/8/20		Nikki
Manually Scheduled	Employee Time System	2 days	Tue 4/7/20	Wed 4/8/20		Arathi
Manually Scheduled	Backend Interface	2 days	Tue 4/7/20	Wed 4/8/20		Vincent
Manually Scheduled	Evaluate and test the prototypes with users	1 day	Wed 4/8/20	Wed 4/8/20		Arathi,Nikki
Manually Scheduled	Combine all documents into draft	1 day	Thu 4/9/20	Thu 4/9/20		Chad
Manually Scheduled	Review and Submit User Interface Design Prototypes	1 day	Thu 4/9/20	Thu 4/9/20		Chad

Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
Manually Scheduled	**Entity Relationship Diagram**	**6 days**	**Mon 4/13/20**	**Sun 4/19/20**		**Arathi,Chad,Nikki,Vincent**
Manually Scheduled	Coordinate meeting to assign duties	1 day	Tue 4/14/20	Tue 4/14/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	Identify Attributes & Entities	2 days	Wed 4/15/20	Thu 4/16/20		Arathi
Manually Scheduled	Assign Primary and Foreign Keys	1 day	Wed 4/15/20	Wed 4/15/20		Vincent
Manually Scheduled	Create Data Model	3 days	Wed 4/15/20	Fri 4/17/20		Chad
Manually Scheduled	Review and Test our Data Model	1 day	Thu 4/16/20	Thu 4/16/20		Arathi
Manually Scheduled	Combine all documents into draft	1 day	Sat 4/18/20	Sat 4/18/20		Chad
Manually Scheduled	Review and Submit User Interface Design Prototypes	1 day	Sat 4/18/20	Sat 4/18/20		Chad
Manually Scheduled	**Usability Test Report**	**4 days**	**Wed 5/13/20**	**Sun 5/17/20**		
Manually Scheduled	Team meeting to assign objectives and functions	1 day	Thu 5/14/20	Thu 5/14/20		Arathi,Chad,Nikki,Vincent
Manually Scheduled	Create Google doc	1 day	Thu 5/14/20	Thu 5/14/20		Arathi
Manually Scheduled	Summary of results	3 days	Wed 5/13/20	Fri 5/15/20		Nikki
Manually Scheduled	Review and submit Usability Test Report	1 day	Sun 5/17/20	Sun 5/17/20		Chad

Use Cases

Use Case 1:

This use case focuses on the transaction process between the customer and the employee using the POS system.

Use Case Name: System approval of customer payment		**ID**: UC-1	**Priority**: High
Actor: Shop employee			
Description: Cashier scans inventory for purchase from customer			
Trigger: Customer is ready to purchase merchandise			
Type: ☑ External ☐ Temporal			
Preconditions:			
1. System is turned on			
2. Cashier identified and clocked-in			
3. Sales system order will be online			
Normal Course:		Information for Steps	
1.0 Customer arrives with goods			
1. Cashier starts new sale		→	Order ID
2. Cashier scans item (see Alternative Course 1.1)		→	Order details
3. System records sale and presents description (see Alternative Course 1.2)		←	Custom receipt
4. System presents total with taxes calculated		←	Order results
5. Cashier receives payment (see Alternative Course 1.4)		→	Process purchase
6. System approves sale, inventory updated		→	Update inventory
7. System prints receipt		←	Update balance sheet
Alternative Courses:			
1.1 Inventory or Payment not recognized			
1. Cashier will enter physical barcode into system		→	Manual override ID
2. System will be updated with current price		→	Update order details
3. Return to normal course		←	Transaction continued
4. Confirm connection/funds to and for credit service		→	Approval request
5a. Receive alternate payment		→	Process purchase
6. Return to normal course		←	Update inventory
7. Exit use case			
Postconditions:			
1. Sale Completed			
2. Tax Calculated			
3. Inventory updated			
4. Commission Recorded			
Summary Inputs	Source	Summary Outputs	Destination
Order ID	Cashier	Receipt	Cashier
Oder details	Cashier	Verification	Store
Manual override	Cashier	Order Approval	Store
Update order details	Cashier	Update inventory	System database
Process purchase	Customer		
Approval request	Cashier		
Update inventory	Cashier		

Use Case 2:

This use case incorporates the functions Ms. Violette will complete in order to manage inventory on the website.

Use Case Name: Display avaliable Inventory on website		**ID**: UC-2	**Priority**: High
Actor: Shop Manager			
Description: Shop manager inputs available merchandise (inventory) on website			
Trigger: Customers want to know what is available for purchase in the store			
Type: ☑ External ☐ Temporal			
Preconditions:			
1. Manager is on the website homepage			
2. Manager logs in through the owner portal			
3. Manager goes through the inventory portal			
Normal Course:		Information for Steps	
1.0 Shop manager enters the inventory page through owners portal			
1. Shop manager selects to edit the inventory page		→	Item ID
2. System displays items in the inventory		→	Inventory Details
3. Shop manager enters item available for sale(see Alternative course 1.2)		←	Edit Inventory
a. Ask Shop Manager how many are available			
4. Shop Manager inputs number of available for selected merchandise		→	Coustom Inventory
5. Shop Managers can choose to make another change in inventory		→	Inventory Results
a. If no more edits are need shop manager can click save changes			
6. System approves changes, inventory updated		→	Approves Request
7. Shop Manager selects log-off of the owners portal		←	Updated Inventory
Alternative Courses:Shop manager enters brand new merchandise			
1.1 Inventory or Item not recognized			
1. Shop manager selects to add new merchandise to the website		→	New Item Request
2. System request merchandise name		→	New Item ID
3. Enter Merchandise details		←	Required Information
4. System propose final details for conformation		→	Process Request
5. Shop Manager approves the merchandise details		→	Approval of Request
6. Return to normal course		←	Update Item Library
7. Exit use case			
PostConditions:			
1. Edit Recorded			
2. Update Item Library			
3. Inventory Updated			
Summary Inputs	Source	Summary Outputs	Destination
Item ID	Manager	System Display	Manager
Edit Inventory	Manager	Verification	System
New Item Request	Manager	Item Approval	manager
Update Inventory details	Manager	Update inventory	System database
Approval request	Manager		
Update inventory	Manager		

Use Case 3:

This use case displays how customer information will be collected, stored, and monitored after transactions.

Use Case Name: Storing customer contact information	**ID**: UC-4	**Priority**: Medium
Actor: Ms. Violette		
Description: Ms. Violette wants to track what merchandise her top customers are purchasing		
Trigger: Need to build retention within customer base		
Type: ☑ External		T
Preconditions:		
1. Only certain employees appointed by Ms. Violette can access customer contact information		
2. System is turned on		
3. Ms. Violette searches customer		
Normal Course:	Information for Steps	
1.0 Search customer contact information		
1. System is turned on		
2. Ms. Violette logs into the system	→	Employee ID
3. Ms. Violette searches for a customer using the customer's first and last name	→	Customer info
4. Customer's information is pulled up with tabs	←	Customer details
4a. First tab- contact information including phone number and email		
4b. Second tab- frequency of purchases		
4c. Third tab- content of purchases (what was purchased)		
4d. Fourth tab- survey evaluations		
5. Ms. Violette selects the third tab	→	Select third tab
6. Showcased are the purchases made, the date of purchase, and the cost of the purchase	←	Content displayed
7. Ms. Violette documents information		
8. Ms. Violette selects to log out of the system	→	Log out of system
Postconditions:		
1. Customer contact information remains confidential		
2. Ms. Violette is sent a notice if another appointed employee completes a customer contact search		

Use Case 4:

Employee schedules will be monitored by Ms. Violette using a time schedule. This use case displays how employees can use the time schedule.

Use Case Name: Displaying Employee Schedule	**ID**: UC-5	**Priority**: Medium
Actor: Shop employee		
Description: The systems will show data on employee work schedules		
Trigger: Employee wants to know when his/her shift will begin		
Type: ☑ External ☐ Temporal		
Preconditions:		
1. The employee is authenticated by logging in to his employee account		
2. The system process employee log-in information and approves		
Normal Course:	Information for Steps	
1.0 Employee schedules		
1. The employee enters account information into the log-in system	→	Employee ID
2. The system confirms the employee's password		
3. If the password is incorrect	←	Login system
3a. Ask employee to try again and re-enter the password; return to step 2	←	Login results
4. The system will display options and dates of the week	→	Process request
5. The employee selects desired date to display	→	Update Schedule
6. The system will display the day selected and the times of all employees with shifts on that day		Update system
7. Employee can log out and return to step 1		
7a. If employee fails to log out system will automatically log-out in 5 mins without user input;return to step 1		
PostConditions:		
1. Weekly shifts will be saved in the history logs		
2. Store managers will be sent a notice to confirm employee schedules at the beginning of each month		

Use Case 5:

The customer will interact with the website, and this use case displays the process that would occur as a result of these actions.

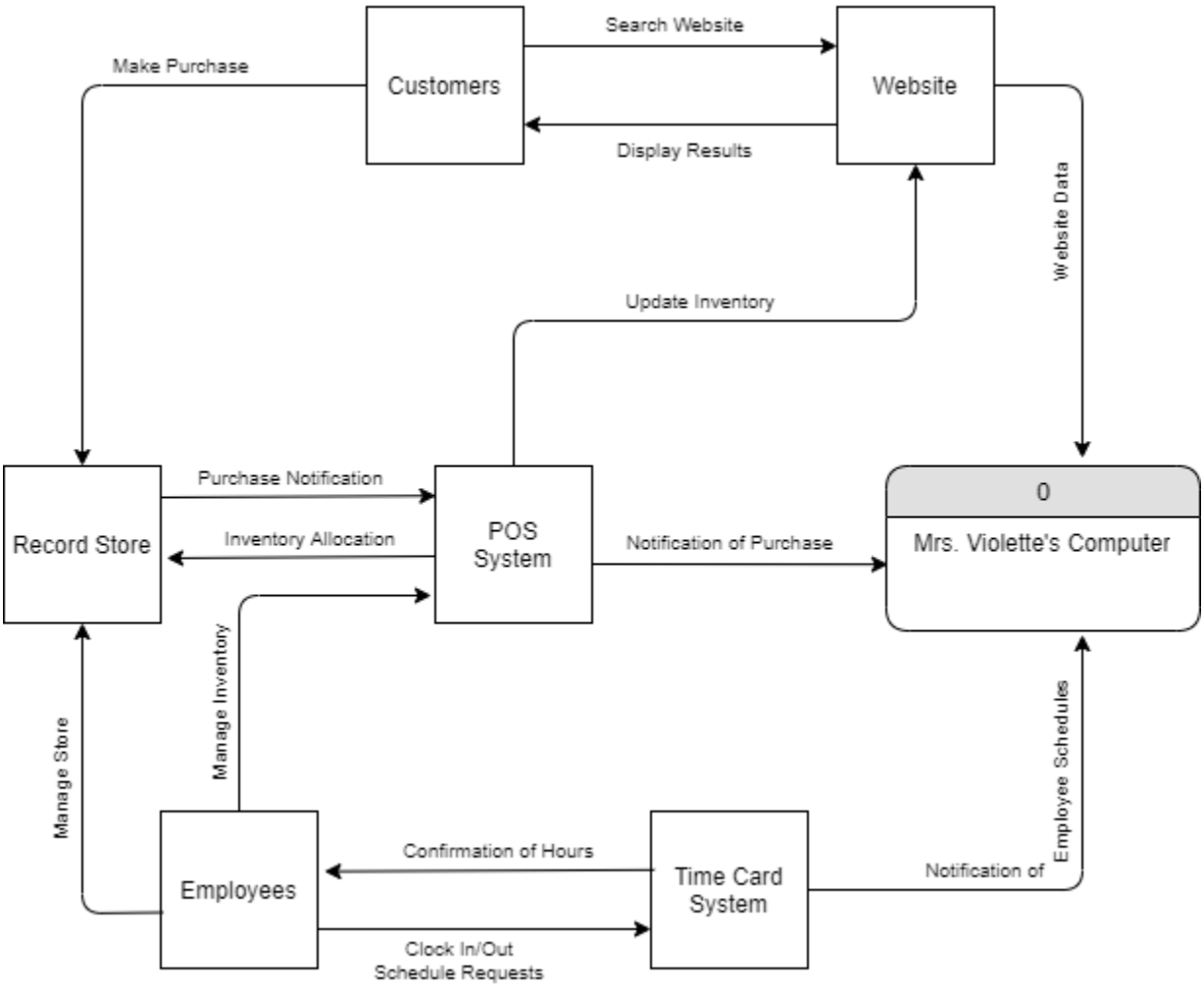
Use Case Name: Website functions for which the customer will interact with	**ID**: UC-3	**Priority**: High
Actor: Customer		
Description: The website will provide online support for customer and will be user friendly		
Trigger: Need for an online presence		
Type: ☑ External ☐ Temporal		T
Preconditions:		
1. Customer is looking for store to buy records for a record store		
2. Customer looks on the internet to access record stores in specific area		
3. Customer sees website listed for Ms. Violette's record store		
Normal Course:	Information for Steps	
1.0 Website Functions		
1. Website is found	→	Connection
2. Customer is granted access to site	→	Customer ID
3. Database of store information is listed on the site	←	System displays info
3a. Home Page- Store hours and location along with visuals of the store		
3b. Inventory Page- features different items and pricing of items		
3c. Contact Information Page: displays the stores phone number, the stores email, and a section where you can leave comments		
4. Customer scrolls through different pages	←	Responsive to user input
5. Customer views the homepage and makes a date to visit store during open hours		
6. Customer closes web pages	←	System exit
Postconditions:		
1. Customer can visit store		
2. Customer can revisit site		
3. Customer can leave reviews on the site or email and keep in contact		

Data Flow Diagrams

River City Records

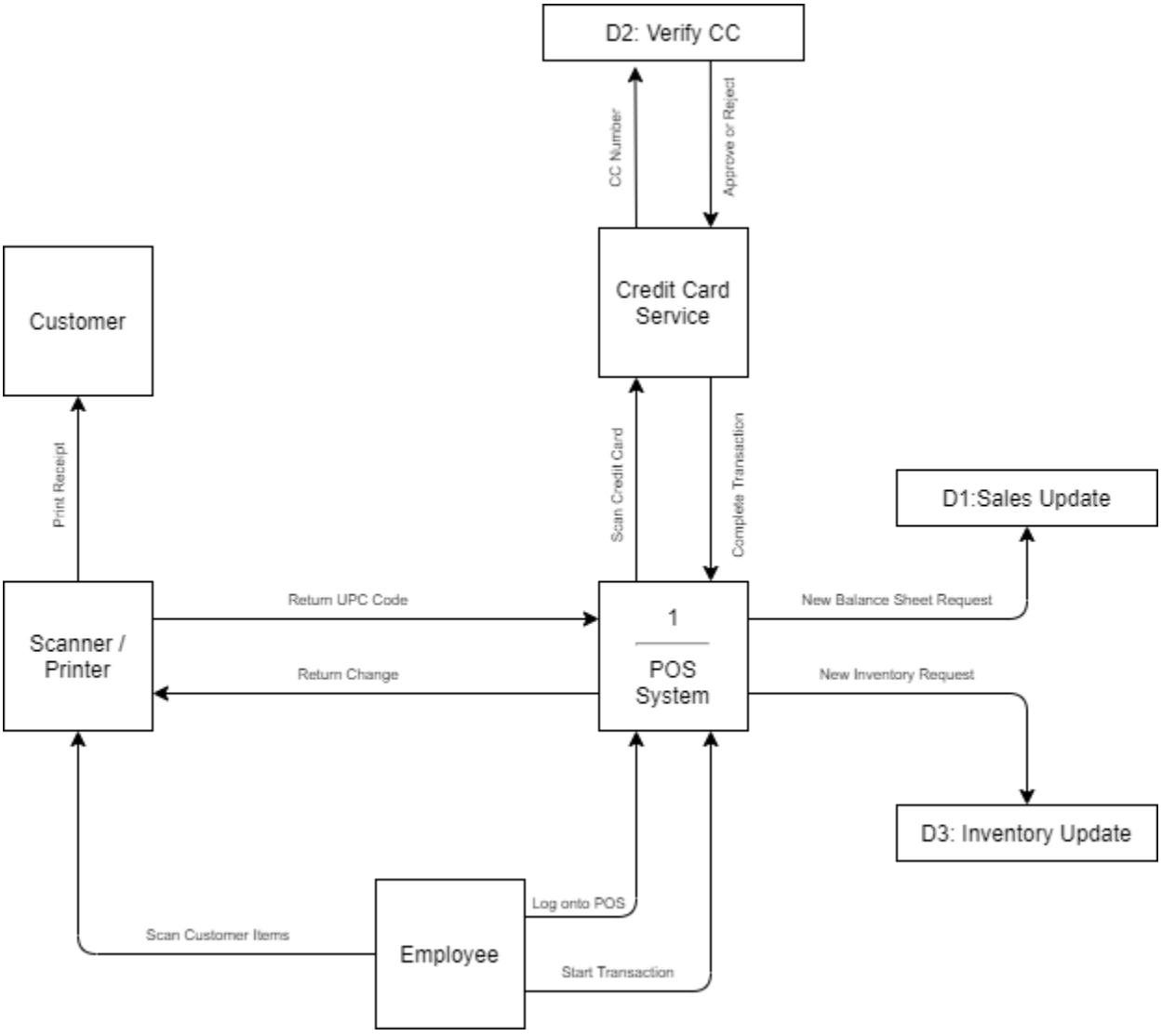
Context Diagram:

Content Diagram: This DFD is a context diagram and displays how Ms. Violette's computer will be able to manage the system.



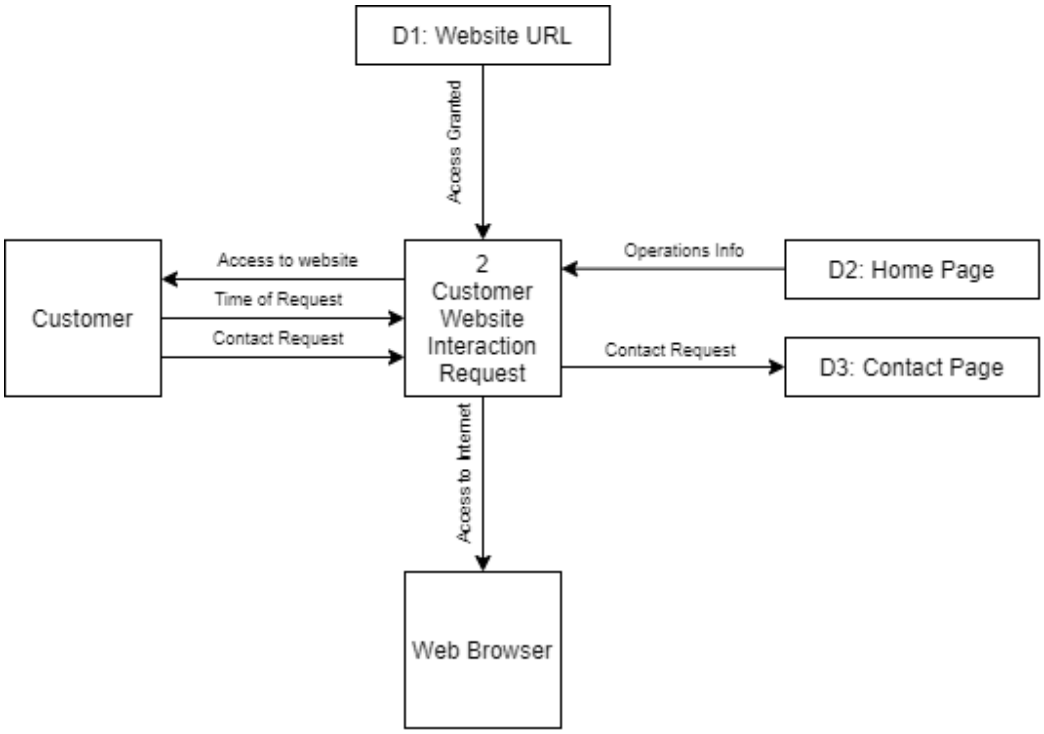
Data Flow Diagram 2:

This DFD displays how the POS system will function during transactions.



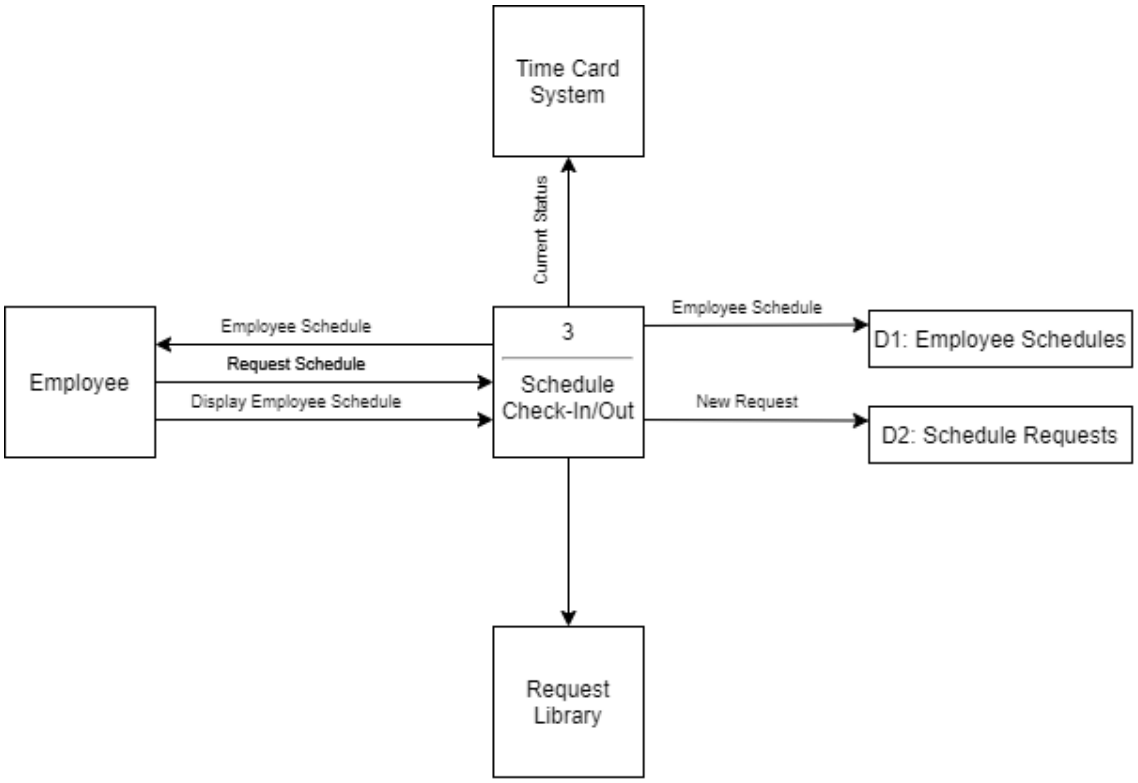
Data Flow Diagram 3:

This DFD displays how information will travel through the website.



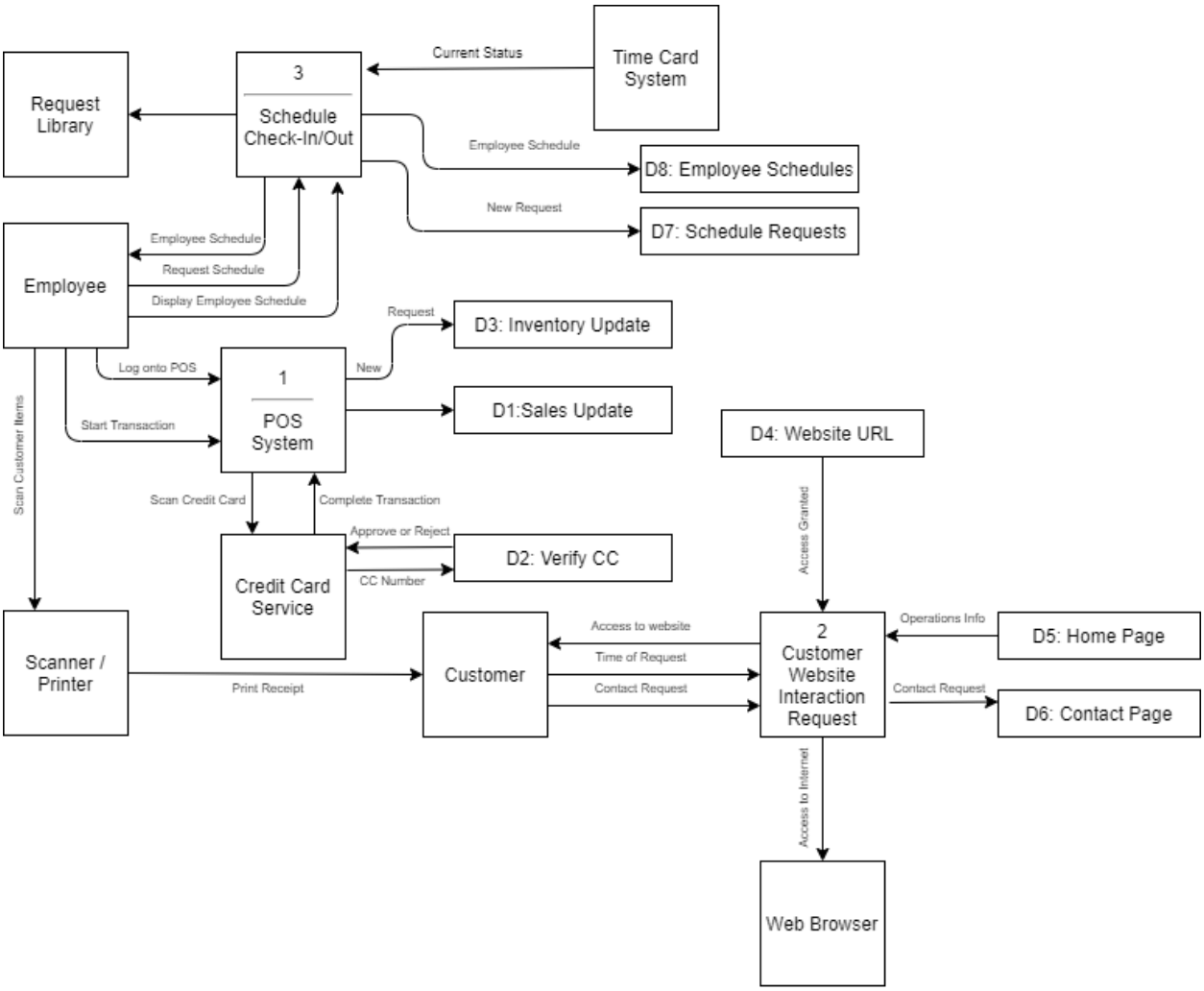
Data Flow Diagram 4:

This DFD displays how employees can clock-in, clock-out, and request time-off.



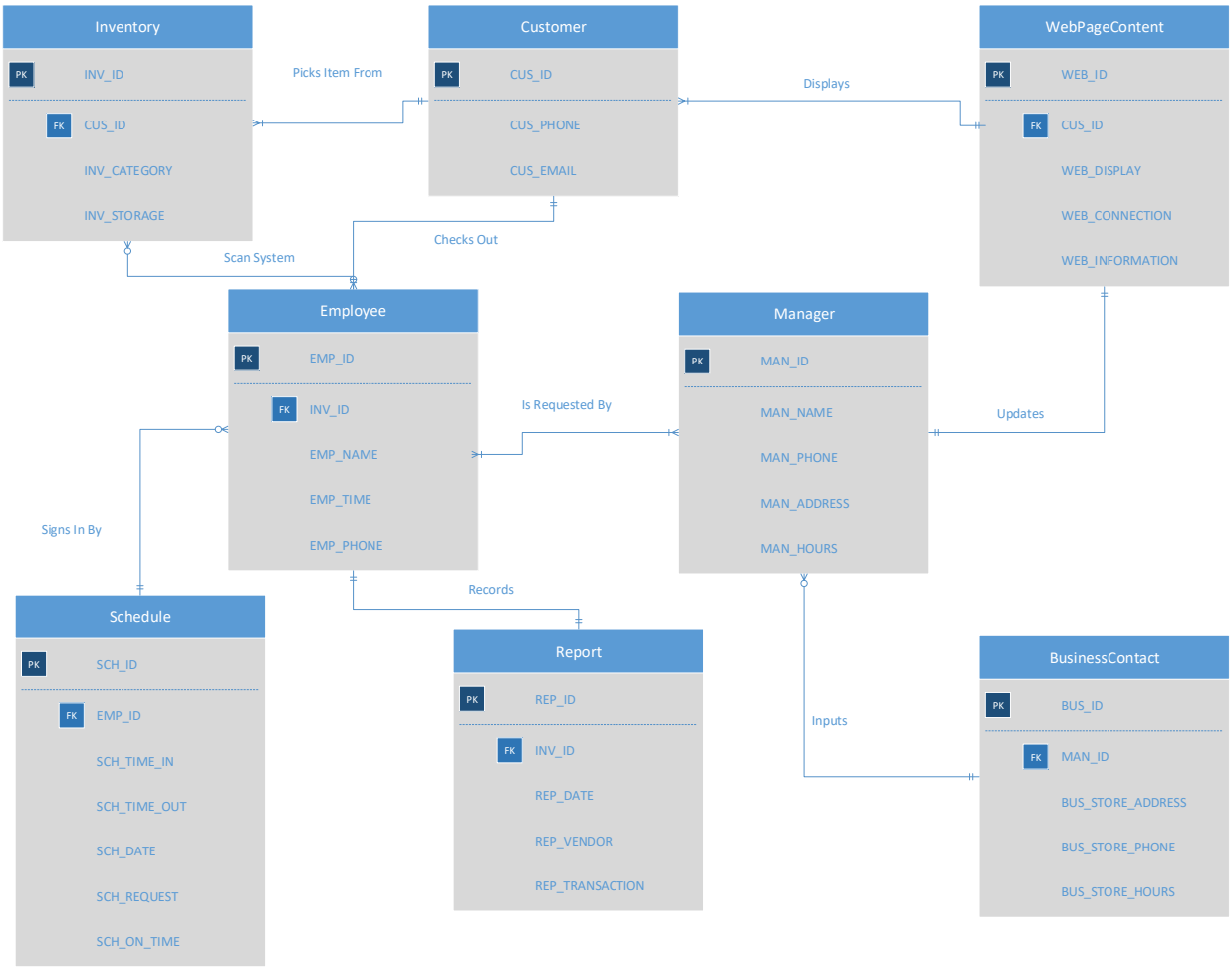
Level 0 Diagram:

This DFD combines all of the previous diagrams and functions of the system and website into one Level 0 diagram.



Entity Relationship Diagrams

River City Records



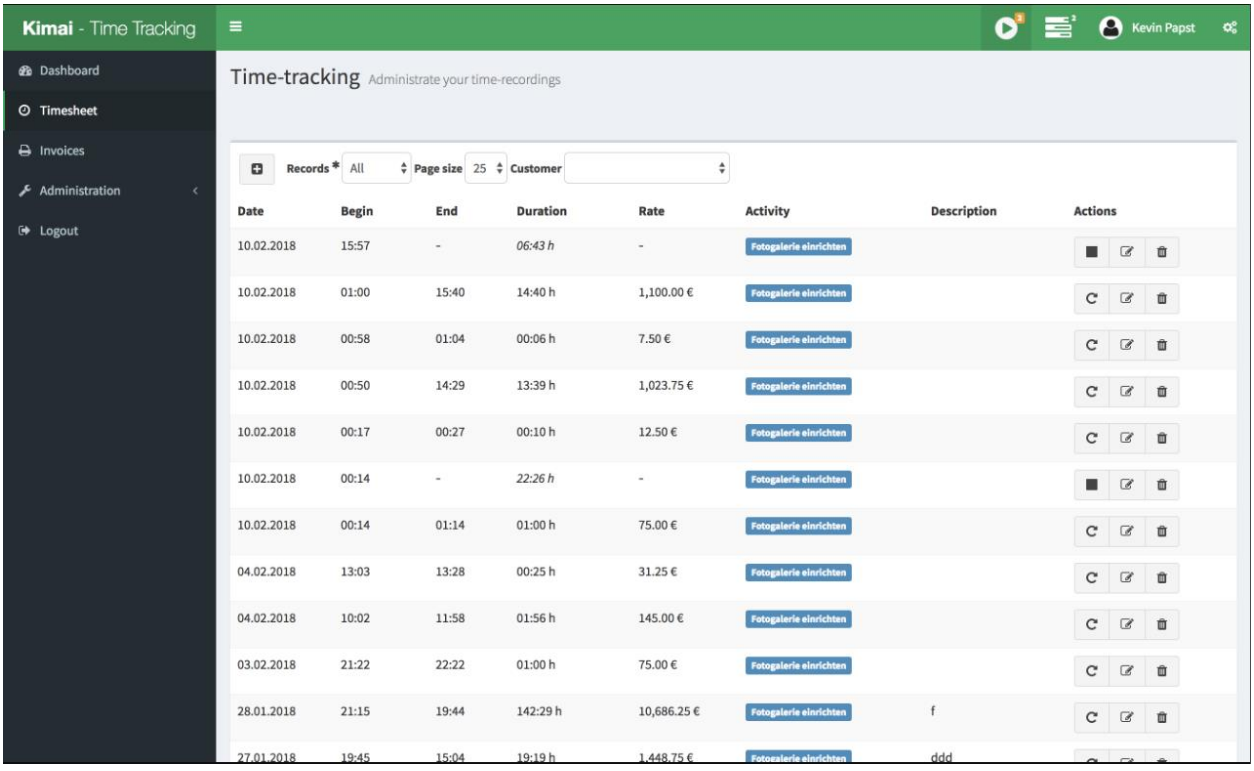
User Interface Prototypes

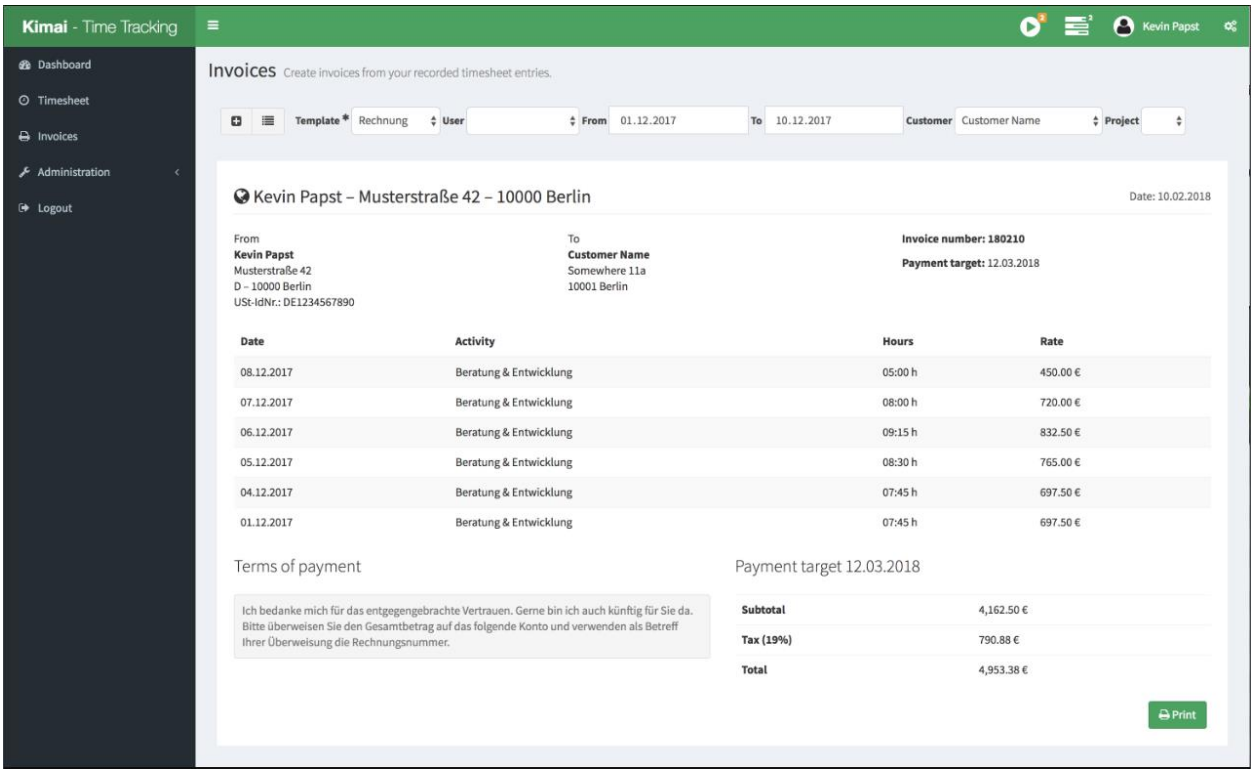
River City Records

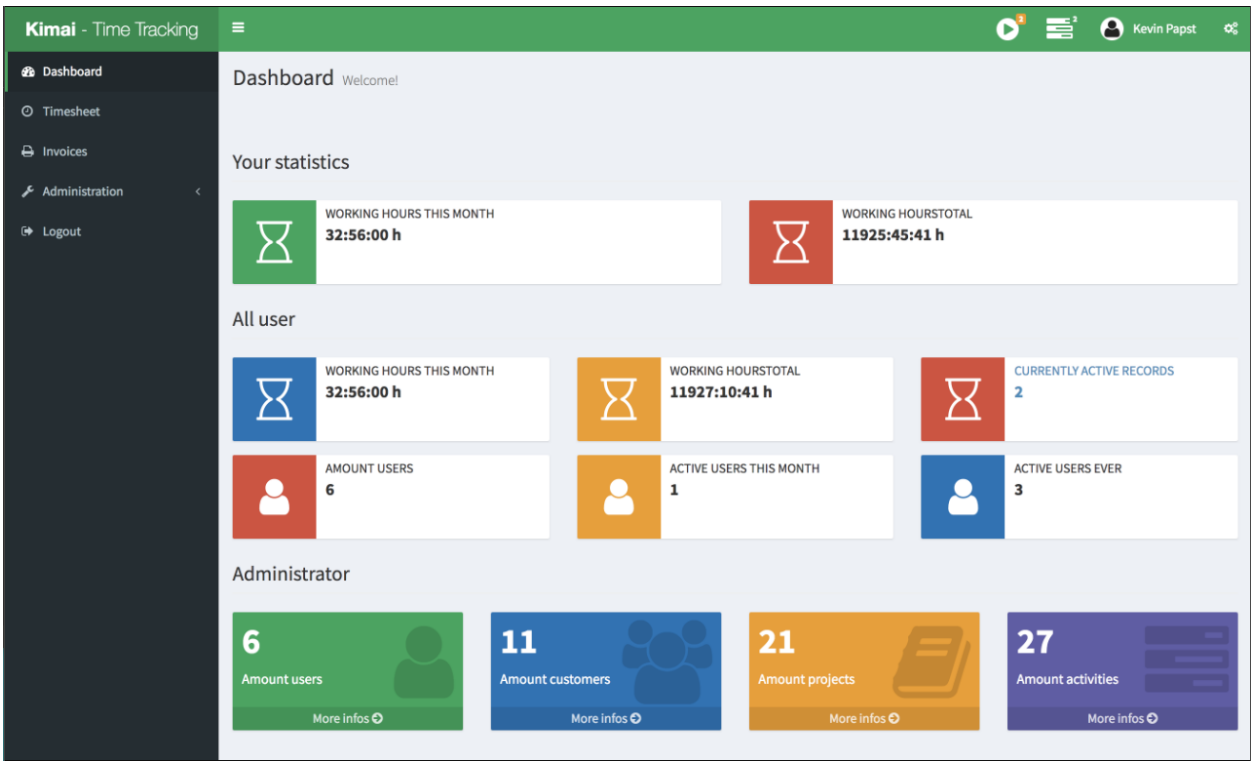
Time-Card System:

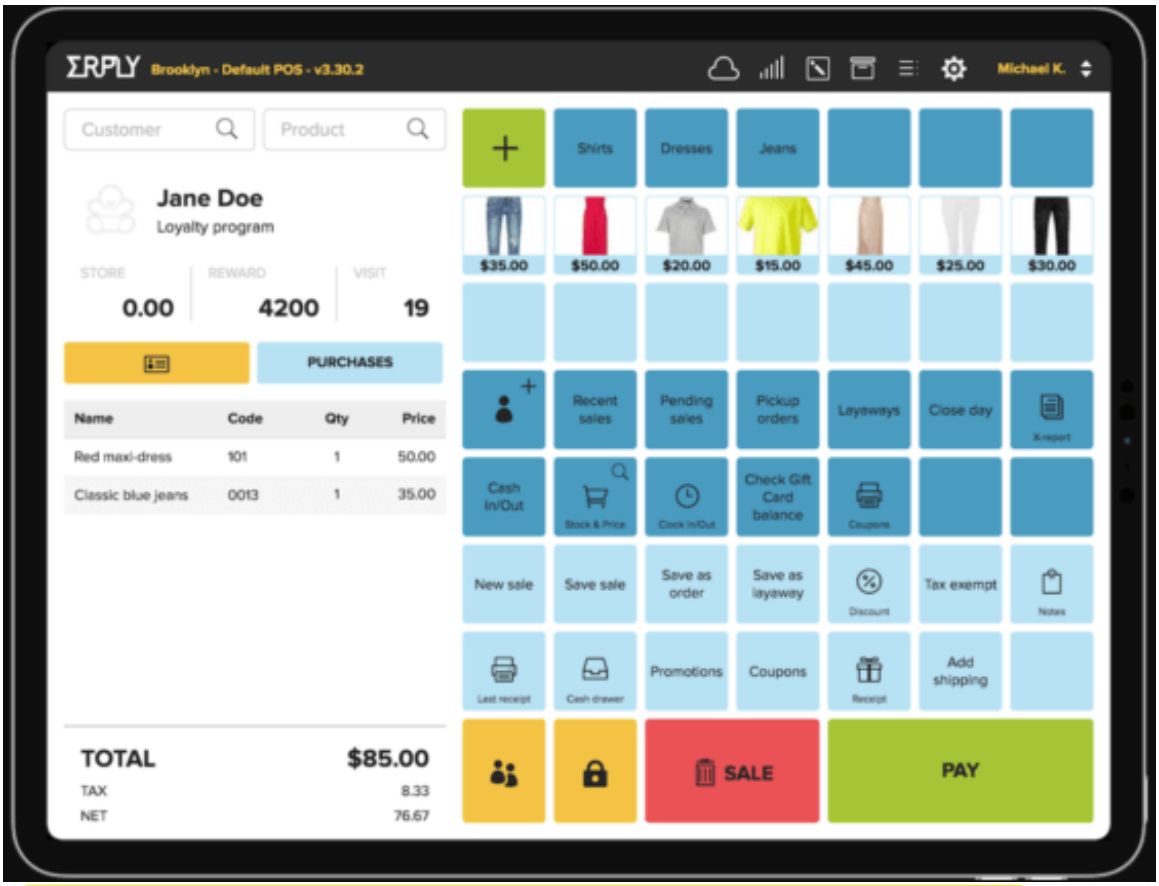
WEEK OF
05/11/2020
EMPLOYEE NAME
EMPLOYEE ID

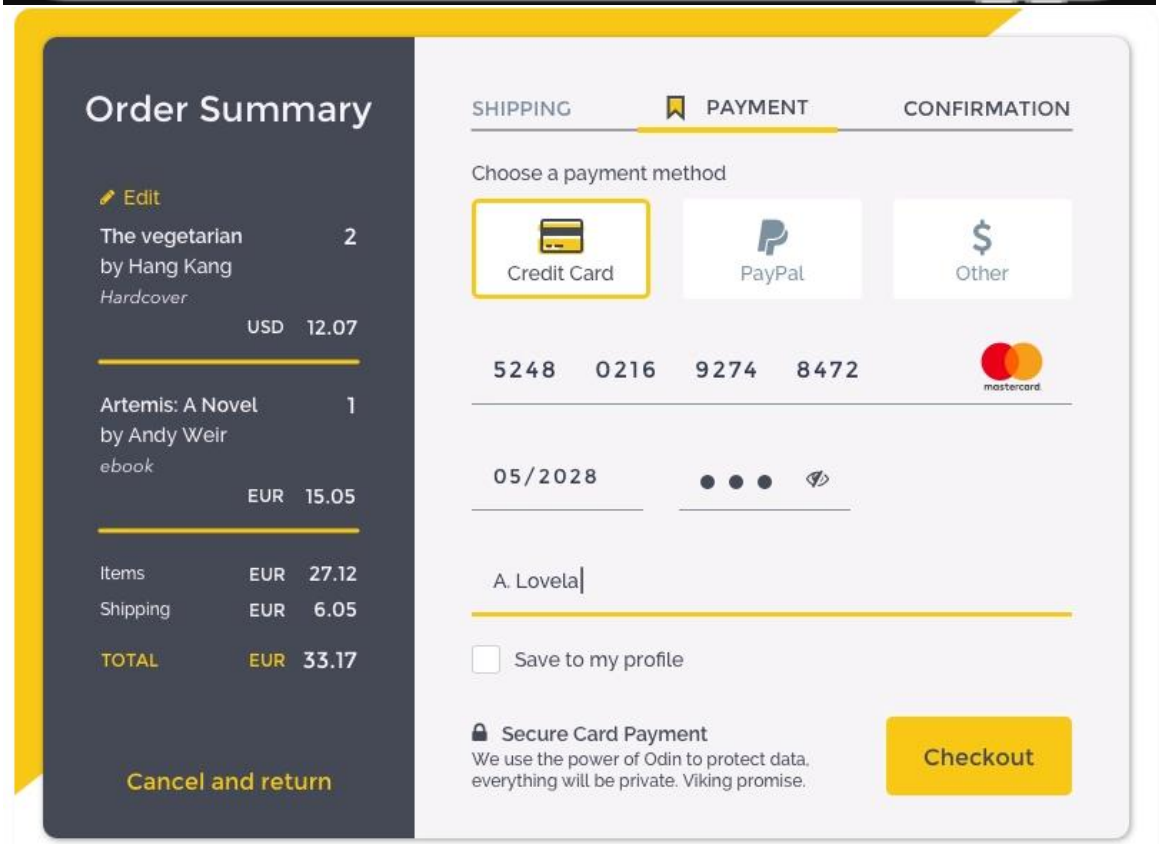
DATE	START TIME	FINISH TIME	REGULAR HOURS	OVERTIME HOURS	SICK	VACATION	HOLIDAY	OTHER	TOTAL HOURS
05/11/2020	8:00 AM	5:00 PM	8	1					9
05/12/2020						8			8
05/13/2020	8:00 AM	4:00 PM	8						8
05/14/2020	8:00 AM	4:00 PM	8						8
05/15/2020	8:00 AM	6:00 PM	8	2					10
05/16/2020									0
05/17/2020									0
		TOTAL HOURS	32	3	0	8	0	0	43
		RATE PER HOUR	$20.00	$30.00	$20.00	$20.00	$20.00	$20.00	WEEKLY TOTAL PAY
		TOTAL PAY PER DAY	$640.00	$90.00	$0.00	$160.00	$0.00	$0.00	$890.00



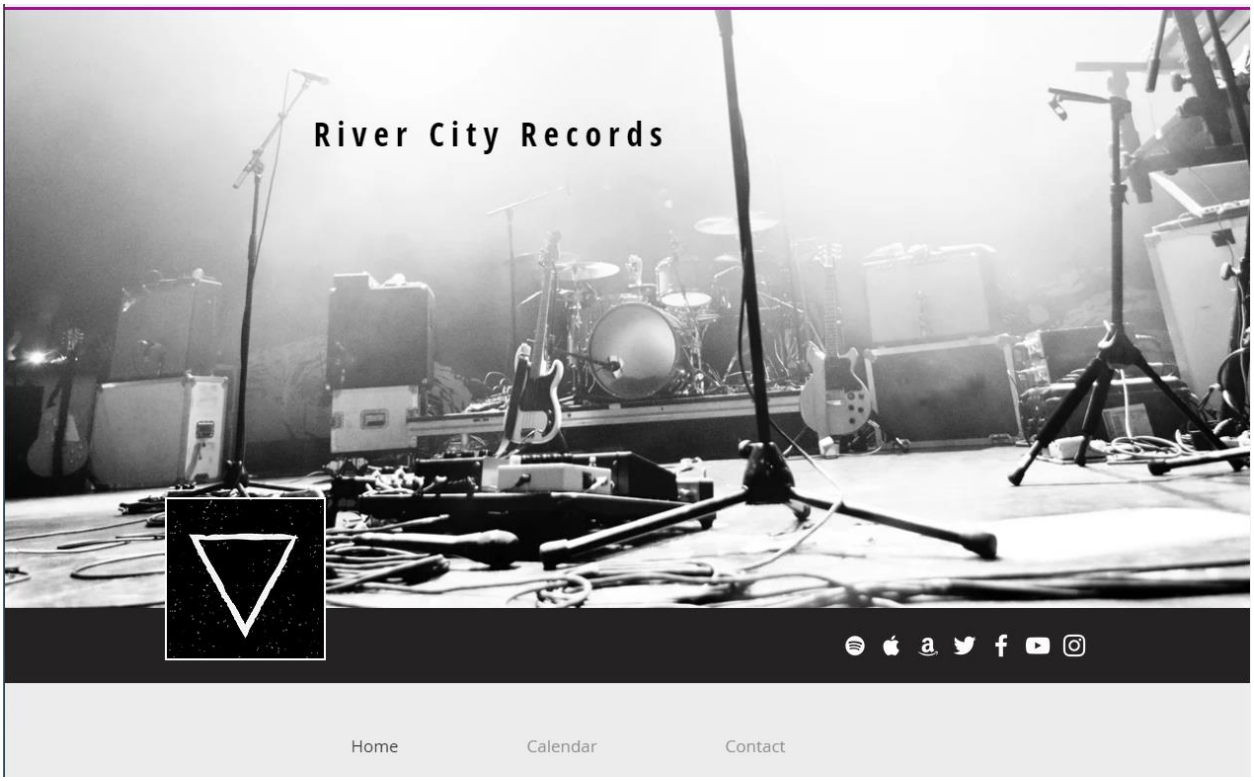

Kimai - Time Tracking
Kevin Papst
Dashboard
Timesheet
Invoices
Administration
Logout
Invoices Create invoices from your recorded timesheet entries.
Template * Rechnung
User
From 01.12.2017
To 10.12.2017
Customer Customer Name
Project
Kevin Papst – Musterstraße 42 – 10000 Berlin
Date: 10.02.2018
From
Kevin Papst
Musterstraße 42
D – 10000 Berlin
USt-IdNr.: DE1234567890
To
Customer Name
Somewhere 11a
10001 Berlin
Invoice number: 180210
Payment target: 12.03.2018
Date Activity Hours Rate
08.12.2017 Beratung & Entwicklung 05:00 h 450.00 €
07.12.2017 Beratung & Entwicklung 08:00 h 720.00 €
06.12.2017 Beratung & Entwicklung 09:15 h 832.50 €
05.12.2017 Beratung & Entwicklung 08:30 h 765.00 €
04.12.2017 Beratung & Entwicklung 07:45 h 697.50 €
01.12.2017 Beratung & Entwicklung 07:45 h 697.50 €
Terms of payment
Ich bedanke mich für das entgegengebrachte Vertrauen. Gerne bin ich auch künftig für Sie da. Bitte überweisen Sie den Gesamtbetrag auf das folgende Konto und verwenden als Betreff Ihrer Überweisung die Rechnungsnummer.
Payment target 12.03.2018
Subtotal 4,162.50 €
Tax (19%) 790.88 €
Total 4,953.38 €
Print


Kimai - Time Tracking
Kevin Papst
Dashboard
Timesheet
Invoices
Administration
Logout
Dashboard Welcome!
Your statistics
WORKING HOURS THIS MONTH
32:56:00 h
WORKING HOURSTOTAL
11925:45:41 h
All user
WORKING HOURS THIS MONTH
32:56:00 h
WORKING HOURSTOTAL
11927:10:41 h
CURRENTLY ACTIVE RECORDS
2
AMOUNT USERS
6
ACTIVE USERS THIS MONTH
1
ACTIVE USERS EVER
3
Administrator
6
Amount users
More infos
11
Amount customers
More infos
21
Amount projects
More infos
27
Amount activities
More infos


ΣRPLY Brooklyn - Default POS - v3.30.2
Michael K.
Customer
Product
Jane Doe
Loyalty program
STORE
REWARD
VISIT
0.00
4200
19
PURCHASES
Name
Code
Qty
Price
Red maxi-dress
101
1
50.00
Classic blue jeans
0013
1
35.00
TOTAL
$85.00
TAX
8.33
NET
76.67
Shirts
Dresses
Jeans
$35.00
$50.00
$20.00
$15.00
$45.00
$25.00
$30.00
Recent sales
Pending sales
Pickup orders
Layaways
Close day
Cash In/Out
Check Gift Card balance
New sale
Save sale
Save as order
Save as layaway
Tax exempt
Promotions
Coupons
Add shipping
SALE
PAY


Order Summary
Edit
The vegetarian
by Hang Kang
Hardcover
2
USD 12.07
Artemis: A Novel
by Andy Weir
ebook
1
EUR 15.05
Items EUR 27.12
Shipping EUR 6.05
TOTAL EUR 33.17
Cancel and return
SHIPPING
PAYMENT
CONFIRMATION
Choose a payment method
Credit Card
PayPal
Other
5248 0216 9274 8472
mastercard
05/2028
A. Lovela
Save to my profile
Secure Card Payment
We use the power of Odin to protect data. everything will be private. Viking promise.
Checkout

Website:



Usability Test Report

Description:

As of last week, we completed our prototype screens for our business case with River City Records. Our current proposal is to install a point-of-sale system which will resolve many of the requirements needed on the project. This system will allow for our client, Mary, to access information regarding inventory, monitor employee schedules, complete transactions, and store customer information. Additionally, we will be providing Mary with a website she can update and monitor in order to showcase her merchandise virtually to attract more customers. We have four prototype screens which we have developed to give Mary an idea of what the final system could look like. The four screens include: the overall system Mary will have access to, the point-of-sale system, the timecard system, and the website. The purpose of these prototype screens is to gauge how users interact with the screens and to understand where changes need to be made. Additionally, these prototype screens will allow us to get feedback on how we are addressing the River City Records business case.

Testing:

As part of our usability test, we approached potential users about our prototype screens. For this test, we talked to Paul Gnanodayan, Arathi's father, and Mike Tsamouras, Nikki's father. Paul Gnanodayan works at VCU Health as a software programmer, so we thought his insight would be valuable as he develops many systems at MCV. Nikki's father is the General Manager of Audi located in Tysons Corner. As the manager of a car dealership, Mr. Tsamouras has to oversee many different projects, some of which include building new systems to make their dealership more efficient, so we thought his feedback would be valuable as well. All of the feedback we received will help us develop a more suitable system for Mary. We had to conduct the tests by showing our users the screens. Both users stated that our screens were easy to understand and navigate; everything was in a clear font and the colors were not overwhelming.

Feedback:

For the overall screen with access to the whole system, we got feedback to make the transaction button bigger since this is a major function of our system. For the website, we received feedback to switch the location of the store hours and "Home" section to make the "Home" section stand out more. The point-of-sale screen should have some options for different ways to send receipts (ex: email, print, both). The time card system needs to display the employee name and ID after signing-in to the system. It seems that the overall function of our screens was good, but there were suggestions about small details we overlooked. Some feedback we got from Mr. Gnanodayan was to make sure we test our screens with users who shop more frequently at records stores. He said it was important that we got feedback from our direct audience, as they will be the ones interacting with it the most. Mr. Tsamouras told us to make sure that all employees are comfortable with how the system operates as they will be utilizing the functions the most. He stated that, "If employees are not comfortable using the system, you have not met the requirements of the project."

Results:

All of the suggestions about the system were taken into consideration and will be altered accordingly. We have yet to make the alterations, but we believe that all of the feedback directly relates to our user experience, and that they will add more value to our end product. As both users stated, we will make sure to test our screens with people from our direct audience and employees as well.

Executive Summary

Throughout the course of this system development, we have had to produce various deliverables to ease the process for our client. Towards the beginning, we developed our requirements definition and made sure that our team and Ms. Violette from River City Records were both on the same page. Our team decided to purchase a point-of-sale system, and then contract someone to develop a website for Ms. Violette. We believed that both of these components would effectively meet all the requirements stated in the business case. We also kept track of our tasks by using a Gantt chart.

Following the establishment of the requirements we needed, we developed use cases. These use cases were implemented so that our team could analyze how tasks would be completed on our system. It allowed us to develop how the system would function as a result of different requests made by the user. Next, we developed data flow diagrams. These diagrams would visually represent how information would travel from one component of the system to another. This allowed us to get a better idea of how to build our system.

After developing these diagrams, we moved to develop a user interface prototype. This component of the process required direct user involvement; we wanted to develop prototype screens and present them to users to obtain feedback regarding the ease of use and learning. We got feedback about our system and website, and then we implemented the feedback and adjusted our screens accordingly (the adjusted screens are located above). The final product we developed was the data model. This model represented all the components of the business and system together; it was used as a way to see what information would be an input or output of the system.

With all these steps completed, there are still more components that need to be established. The system needs to be physically developed and installed into the store. Additionally, a contractor needs to develop the physical website. Both Ms. Violette and the employees need to be trained on how to use the point-of-sale system and the website. Once the system and website are developed, then we have do a trial run where Ms. Violette, employees, and customers use both systems to see how efficient it is for the store. After this test run, adjustments will be made based on feedback; this process will continue in rotation until the most efficient system and website are produced for Ms. Violette.

We recommend proceeding by still utilizing the Gantt chart for our team since it allowed us to properly assign tasks through our team. We also believe that users should still be very involved in the remaining development of the system and website. With these latter steps dealing with installation, Ms. Violette and her employees should be prepared to be very involved since we will want to ensure they are the most comfortable with the system and website. We believe that if we proceed in this way, we will be able to complete all components of the system.