IST - 659 Data Admin Concepts and Db Mgmt.

Fall 2024

Final Group Project

INFINITE PLAY Store Database Design and Implementation

Group 2:

Ashish Ghaytadak,

Karan Salunkhe,

December 9th, 2024

Table of Content

1. Executive Summary

Infinite Play Game Store, which specializes in console games, has been experiencing a growth rate in its business. Like any other firm, the store experienced some problems that are associated with low customer satisfaction as it amplified its size. Customers also filed complaints about the in-store customer service, again, there was no analytical info held by the business and there was no possibility of loading any data to solve the above problem. To solve the problem the business requires data in the form of customer data, transaction data, product data, display data, employee data, employee schedule data and employee rating data. After implementation of the new database system, the Infinite Play game store was able to come up with reasonable reports. Using the proposed database, the business can then generate monthly reports on the customers base, monthly reports on the assessment of employees on customers, and the report on these peak hours and the current position. All these reports can help in the creation of a positive customer in-store experience.

The data structure in use by the business is in the fourth of five phases, testing and evaluation, according to DBLC. The project is after the first and second phase of study, design and implementation and loading phase and before the testing and evaluation and operation and maintenance and evolution phase. A need arises to continue improving the database because problems that are likely to occur are bound to occur. Repetition of updating the database will help in doing away with constraints of Infinite Play game store business and it could influence generations of further economic revenues and customers loyalty.

2. Introduction

2.1) Business Situation

The target market of the organization is the gamers in the New York City, and the organization is a game store called Infinite Play Game Store that has been operating for a year and a half. The store is an official partner retailer that only offers console games which is hard copy material that makes it possible for games to be played on platform consoles. Since the start of the store, revenue has been progressing continuously and incrementally. This success is famous for enabling the customers to obtain games on many platforms. Popular games are available, and the shop also includes and stocks many of the not so popular games. For that reason, many console game lovers started coming to buy games. Where the rates of both new customers and frequents customers increased the store expanded at an alarming rate. However, customers were not happy with its service. Increasingly, customers complained to me they were treated rudely in store. Issues occurred since there was no data to engage customers with their complaints. It started to be overwhelmed with the current spreadsheet since it cannot produce any data that can be used to introduce the store to customers. As is presented in Table 1, the spreadsheet only included the transactions' data.

Table 1. The current spreadsheet that Infinite Play store is using to keep track of its sales.

Customer	Invoice	Date	Total Amount	Game 1	Price 1	Quantity 1	Game 2	Price 2	Quantity 2
Customer 1	1212	1/23/2021	59.99	The Elder Scrolls V: Skyrim	59.99	1			
Customer 2	1213	1/23/2021	29.99	Rocket League	29.99	1			
Customer 3	1216	1/24/2021	9.99	Puzzles 101	9.99	1			
Customer 4	1214	1/24/2021	89.98	The Elder Scrolls V: Skyrim	59.99	1	Rocket League	29.99	1

2.2) Business Problems

Customers were dissatisfied with customer service within stores. First, customers were complaining about employees. They observed that employees did not deliver the same services to the customers as were required in the company. The standards of customer service received declined according to the day of the week and time. However, at the same level some of the employees were friendly while others were unfriendly. In addition, employees have difficulties responding to customer inquiries since this requires sufficient data or information on customers and products. For instance, an employee would not know what to tell a customer who approached to buy a gift for his/her grandson when the latter asked, “Which game do teenagers boys most prefer?”.

Secondly the customers complained that the satisfaction rate was low since the check-out time was long and employees who offer assistance were few and there were no directions to specific products. These complaints were made instead of having a detailed spreadsheet of Infinite Play store, arguing more about transactions, the organization of customer-to-employee relationships was rather stark, and it was hard to deliver exceptional customer service. Moreover, there is no other performing report that can be generated with the help of this existing spreadsheet to solve the problem and take actions.

3. Information Requirement

Earlier, customer service on the premises in store included a help desk, payment and after service support was offered through Infinite Play Game Store. But it requires more data from a new database to enhance the store's customer experience and satisfaction level.

In order to give better quality customer service in-store such knowledge about customer and the games in advance should include "What other games did the customers purchase and what are their preferences based on the genders or age brackets?", "Which of the games should the store recommend?".

Further, to solve the problem, that is long-waiting time to check-out the store needs information like "When is the time most busy with customers and how many employees should be deployed during the time?".

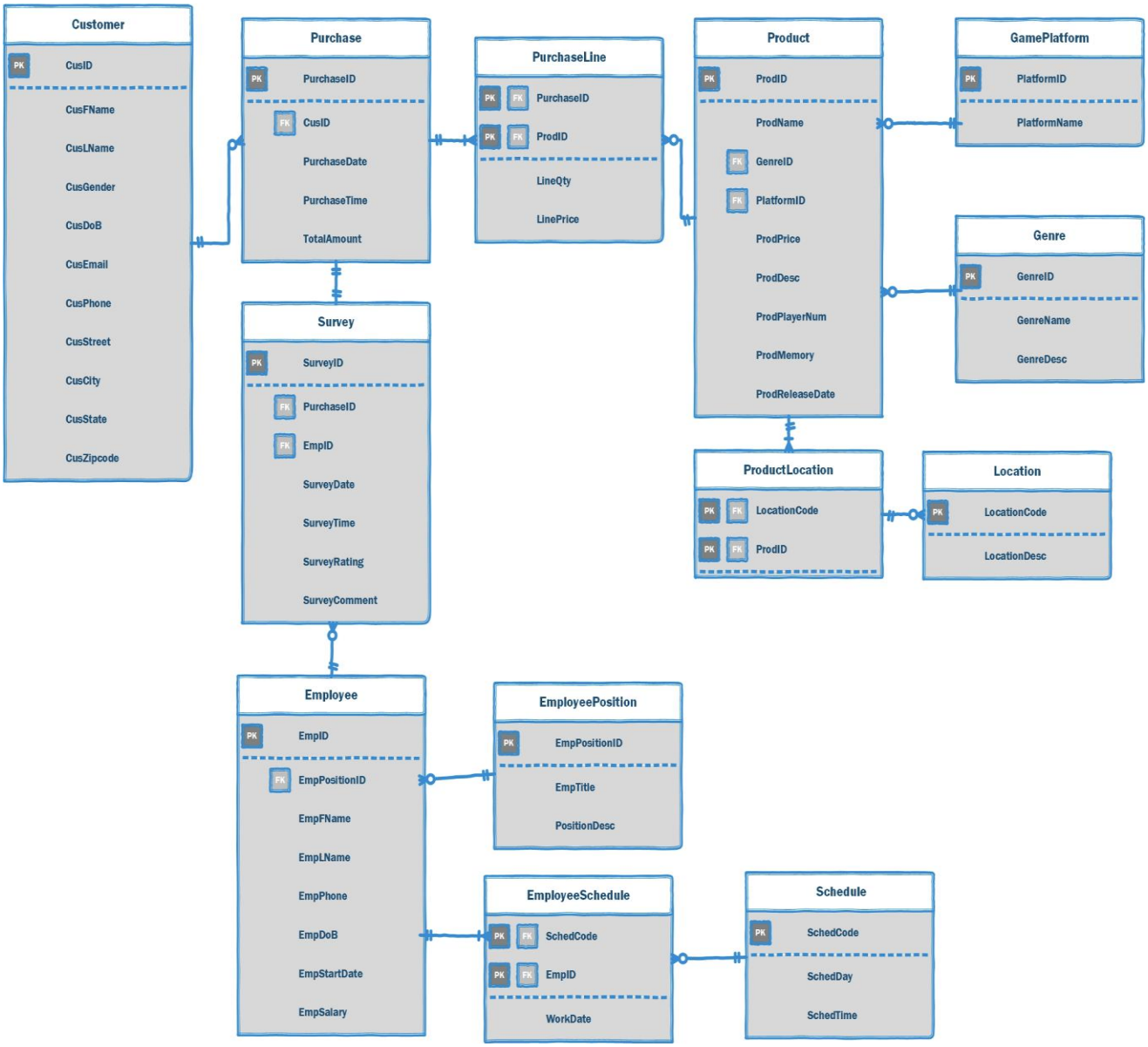
Besides, the store came to understand the significance of obtaining the ratings from the employees serving customers to enhance customer satisfaction. Based on the rating, the employees will be arranged to go for more training, or which will receive an incentive. There is information that is essential in implementing a human resource management system such as "Who among the store's employees have frequently reacted to customers poorly?", "Which of the employees are low rater and who among the store's employees requires training?"

4. Conceptual Design: ERD and Business Rule

4.1) ERD Design

To support the business, the conceptual database is designed as Figure 1. This ERD design will support the business goal of improving customer satisfaction.

Figure 1. ERD Design for Infinite Play Game Store database



4.2) Design Explanation (Business Rules, Cardinalities)

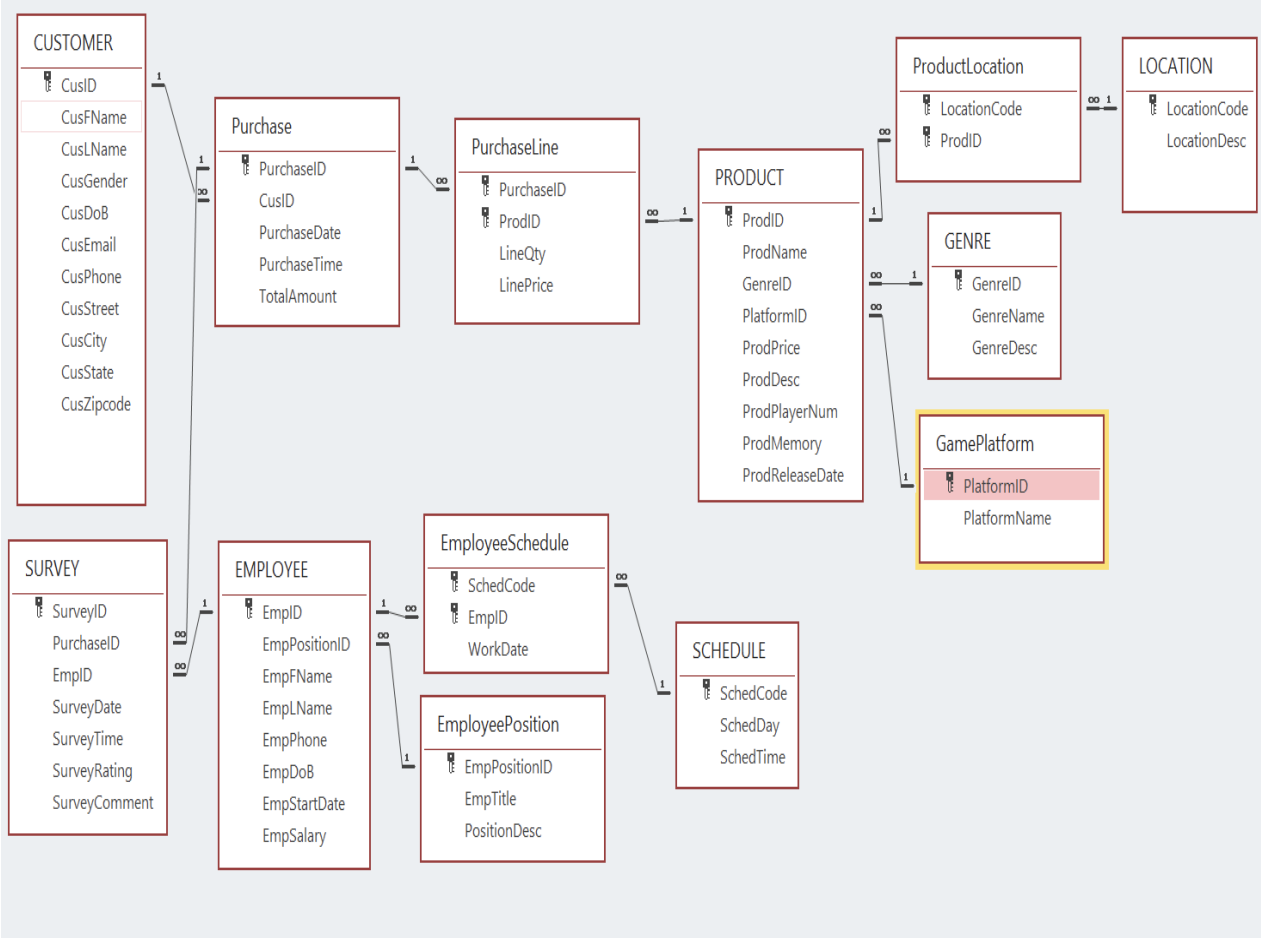
a. Customer, Purchase tables cardinality is many-to-one (M:1). One customer can have zero or multiple purchases. One purchase ID can be generated by one customer.
b. Purchase, Product tables cardinality is many-to-many (M:N). One purchase record can have one or multiple products. One product can be purchased zero or multiple times. To solve the M:N relationship, 'PurchaseLine' bridge entity was created. Purchase, PurchaseLine tables cardinality is now an M:1 relationship, where one PurchaseID can have one or more in PurchaseLine. PurchaseLine, Product tables cardinality is now an M:1 relationship, where one ProdID can have zero or more in PurchaseLine.
c. Product, GamePlatform tables cardinality is many-to-one (M:1). One product can have one platform. One platform can have zero or multiple products.
d. Product, Genre tables cardinality is many-to-one (M:1). One product can have one and only genre. One genre can have zero or multiple products.
e. Location, Product tables cardinality is many-to-many (M:M). One location can hold zero or multiple products, and one product can be displayed in one or more locations. 'ProductLocation' bridge entity was created.
f. Purchase, Survey tables cardinality is many-to-one (M:1). One purchase ID can generate one and only survey ID, and one survey ID can be made by one and only purchase ID.
g. Employee, Survey tables cardinality is many-to-one (M:1). One employee can have zero or multiple survey records, whereas one survey ID can rate only one employee.
h. Employee, EmployeePosition tables cardinality is many-to-one (M:1). One employee can have only one position, and one position can have zero or multiple employees.

5. Implementation

Data Diagram

Data diagram for the Infinite Play game store is depicted below. The diagram shows table names and attributes names. Moreover, primary keys are shown by the key icons, and foreign keys are shown through the lines.

Figure 2. Data diagram for Infinite Play Game Store



6. Business Reports

6.1) Business Report Design 1

a. Business Report Table

Table 2. Monthly Sales-Summary Report

Monthly Sales-Summary Report (For 1/1/2021 Thru 1/31/2021)							
ProdID	**ProdName**	**Genre ID**	**Total Num of Purchase**	**TNP by Male**	**TNP by Female**	**TNP Under 30**	**TNP Over 30**
12134	Rocket League	SP	3	2	1	3	0
13456	Rocket League	SP	3	2	1	2	1
1868	College	AD	2	1	1	1	1
1869	College II	AD	2	2	0	1	1
32145	Analyst II	RP	1	0	1	1	0
32146	Analyst III	RP	2	0	2	2	0
42785	Risk	ST	2	2	0	1	1
54674	Animal Crossing	AD	6	0	6	5	1
63770	Rocket League	SP	1	1	0	1	0
6789	The Elder Scrolls V: Skyrim	RP	1	1	0	1	0
6790	The Elder Scrolls V: Skyrim	RP	1	0	1	1	0
9789	Puzzles of The World	PZ	2	1	1	2	0
Sum			**26**	**12**	**14**	**21**	**5**

b. SQL Queries

To generate the body of the Monthly Summary Sales Report, below 5 queries were needed, and the first three columns were extracted from the Product table. The data in the queries were accumulated for one month.

Query 1) Total Number of Purchase and Output

```
SELECT
    p.ProdID,
    p.ProdName,
    p.GenreID,
    COUNT(pl.PurchaseID) AS Total_Num_of_Purchase
FROM
    Product p
JOIN
    PurchaseLine pl ON p.ProdID = pl.ProdID
JOIN
    Purchase pu ON pl.PurchaseID = pu.PurchaseID
JOIN
    Customer c ON pu.CusID = c.CusID
WHERE
    pu.PurchaseDate BETWEEN '2021-01-01' AND '2021-01-31'
GROUP BY
    p.ProdID,
    p.ProdName,
    p.GenreID
ORDER BY
    Total_Num_of_Purchase DESC;
```

Result –

ProdID	ProdName	GenreID	Total_Num_of_Purchase
54674	Animal Crossing	AD	6
12134	Rocket League	SP	3
13456	Rocket League	SP	3
1868	College	AD	2
32146	Analyst III	RP	2
9789	Puzzles of The World	PZ	2
1869	College II	AD	2
42785	Risk	ST	2
63770	Rocket League	SP	1
6789	The Elder Scrolls V: Skyrim	RP	1
32145	Analyst II	RP	1
6790	The Elder Scrolls V: Skyrim	RP	1

Query 2) Purchase of Male Customers

```
SELECT
    Product.ProdID,
    ProdName,
    GenreID,
    CusGender,
    COUNT(PurchaseLine.PurchaseID) AS Total_Num_of_Purchase
FROM
    Product
    JOIN PurchaseLine ON Product.ProdID = PurchaseLine.ProdID
    JOIN Purchase ON Purchase.PurchaseID = PurchaseLine.PurchaseID
    JOIN Customer ON Customer.CusID = Purchase.CusID
WHERE
    CusGender = 'M'
    AND Purchase.PurchaseDate BETWEEN '2021-01-01' AND '2021-01-31'
GROUP BY
    Product.ProdID,
    ProdName,
    GenreID,
    CusGender;
```

Result –

ProdID	ProdName	GenreID	CusGender	Total_Num_of_Purchase
63770	Rocket League	SP	M	1
6789	The Elder Scrolls V: Skyrim	RP	M	1
13456	Rocket League	SP	M	2
1869	College II	AD	M	2
9789	Puzzles of The World	PZ	M	1
42785	Risk	ST	M	2
1868	College	AD	M	1
12134	Rocket League	SP	M	2

Query 3) Purchase of Female Customers

```
SELECT
    Product.ProdID,
    ProdName,
    GenreID,
    CusGender,
    COUNT(PurchaseLine.PurchaseID) AS Total_Num_of_Purchase
FROM
    Product
    JOIN PurchaseLine ON Product.ProdID = PurchaseLine.ProdID
    JOIN Purchase ON Purchase.PurchaseID = PurchaseLine.PurchaseID
    JOIN Customer ON Customer.CusID = Purchase.CusID
WHERE
    CusGender = 'F'
    AND Purchase.PurchaseDate BETWEEN '2021-01-01' AND '2021-01-31'
GROUP BY
    Product.ProdID,
    ProdName,
    GenreID,
    CusGender;
```

Result –

ProdID	ProdName	GenreID	CusGender	Total_Num_of_Purchase
12134	Rocket League	SP	F	1
1868	College	AD	F	1
32146	Analyst III	RP	F	2
54674	Animal Crossing	AD	F	6
9789	Puzzles of The World	PZ	F	1
32145	Analyst II	RP	F	1
6790	The Elder Scrolls V: Skyrim	RP	F	1
13456	Rocket League	SP	F	1

Query 4) Purchase of Customers Under Age 30

```
SELECT
    Product.ProdID,
    ProdName,
    GenreID,
    COUNT(PurchaseLine.PurchaseID) AS Total_Num_of_Purchase
FROM
    Product
    INNER JOIN PurchaseLine ON Product.ProdID = PurchaseLine.ProdID
    INNER JOIN Purchase ON Purchase.PurchaseID = PurchaseLine.PurchaseID
    INNER JOIN Customer ON Customer.CusID = Purchase.CusID
WHERE
    YEAR(Customer.CusDoB) >= 1991
    AND PurchaseDate BETWEEN '2021-01-01' AND '2021-01-31'
GROUP BY
    Product.ProdID,
    ProdName,
    GenreID;
```

Result -

ProdID	ProdName	GenreID	Total_Num_of_Purchase
63770	Rocket League	SP	1
6789	The Elder Scrolls V: Skyrim	RP	1
12134	Rocket League	SP	3
1868	College	AD	1
32146	Analyst III	RP	2
13456	Rocket League	SP	2
54674	Animal Crossing	AD	5
9789	Puzzles of The World	PZ	2
1869	College II	AD	1
42785	Risk	ST	1
32145	Analyst II	RP	1
6790	The Elder Scrolls V: Skyrim	RP	1

Query 5) Purchase of Customers Over age 30

```
SELECT
    Product.ProdID,
    ProdName,
    GenreID,
    COUNT(PurchaseLine.PurchaseID) AS Total_Num_of_Purchase
FROM
    Product
    INNER JOIN PurchaseLine ON Product.ProdID = PurchaseLine.ProdID
    INNER JOIN Purchase ON Purchase.PurchaseID = PurchaseLine.PurchaseID
    INNER JOIN Customer ON Customer.CusID = Purchase.CusID
WHERE
    YEAR(Customer.CusDoB) <= 1991
    AND PurchaseDate BETWEEN '2021-01-01' AND '2021-01-31'
GROUP BY
    Product.ProdID,
    ProdName,
    GenreID;
```

Result -

	ProdID	ProdName	GenreID	Total_Num_of_Purchase
▶	1869	College II	AD	1
	1868	College	AD	1
	42785	Risk	ST	1
	13456	Rocket League	SP	1
	54674	Animal Crossing	AD	1

c. Tables Used to Generate the Documented Report

Customer, Purchase, Purchase Line, and Product tables were employed to generate the Monthly Summary Sales Report. Our team used the Customer table to bring out the customer demographic data. Purchase and Purchase Line tables were used to connect the customer purchase data and the products they bought. Lastly, the Product table was also used to know the corresponding game data to the purchase.

Table 3. Example of 10 Rows from Customer Table

Customer										
CusID	**Cus FName**	**Cus LName**	**Cus Gender**	**Cus DoB**	**Cus Email**	**Cus Phone**	**Cus Street**	**CusCity**	**Cus State**	**Cus Zip code**
1001	Korbin	Sorensen	M	4/16/1998	k_sore@sql.org	5039119315	315 SW. E Ave	Portland	OR	97330
1002	EunJeong	Heo	F	6/9/1995	tojabi@gmail.com	2027050133	330 NW 9th st	Corvallis	OR	97330
1003	Leonardo	Dicaprio	M	11/11/1974	leo@gmail.com	2023769081	155 NW Kings Blvd	New York	NY	90293
1004	Hyomin	Shin	F	2/19/1995	hyo@gmail.com	5425672901	NS 390 Ave	San Francisco	CA	92097
1005	Youngryun	Choi	F	11/7/1996	choi@gmail.com	5419087118	290 SW Sierra Blvd	Corvallis	OR	97330
1006	Mingxuan	Fu	F	2/21/1994	Fu@gmail.com	5078772341	NW Sequoia Ave	Eugene	OR	97330
1007	Liam	Smith	M	3/2/1987	liam@gmail.com	9052522602	NW Cypress Ave	Corvallis	OR	97331
1008	Noah	Williams	M	10/31/1996	hoah@gmail.com	9020707165	210 SW 15th st	Corvallis	OR	97332
1009	Jessica	Simpson	F	10/13/2002	jess@gamil.com	7315031766	760 SW May Ave	Sacramento	CA	92094
1010	Oliver	Jones	M	8/27/2007	oil@yahoo.com	5412766343	320 SW Morris Ave	Corvallis	OR	97330

Table 4. Example of 10 Rows from Purchase Table

Purchase				
PurchaseID	**CusID**	**PurchaseDate**	**PurchaseTime**	**TotalAmount**
1212	1001	1/23/2021	10:43:00 AM	89.98
1213	1002	1/23/2021	11:01:00 AM	29.99
1214	1005	1/23/2021	11:45:00 AM	84.98
1215	1001	1/23/2021	11:52:00 PM	29.99
1216	1004	1/23/2021	12:15:00 PM	9.99
1217	1009	1/24/2021	9:10:00 AM	59.99
1218	1008	1/24/2021	11:30:00 AM	34.98
1219	1010	1/24/2021	11:38:00 AM	15.99
1220	1011	1/24/2021	12:25:00 PM	24.99
1221	1012	1/24/2021	12:32:00 PM	24.99

Table 5. Example of 10 Rows from PurchaseLine Table

Purchase Line			
PurchaseID	**ProdID**	**LineQty**	**LinePrice**
1212	63770	1	29.99
1212	6789	1	59.99
1213	12134	1	29.99
1214	1868	1	24.99
1214	32146	1	59.99
1215	13456	1	29.99
1216	54674	1	49.99
1216	9789	1	9.99
1217	32146	1	59.99
1218	1869	1	24.99

Table 6. Example of 10 Rows from Product Table

Product								
Prod ID	**Prod Name**	**Genre ID**	**Platform ID**	**Prod Price**	**ProdDesc**	**Prod Player Num**	**Prod Memory**	**Prod Release Date**
12134	Rocket League	SP	2	29.99	Competitive 3v3 soccer but with rocket cars.	3	50	3/10/2015
13456	Rocket League	SP	1	29.99	Competitive 3v3 soccer but with rocket cars.	3	50	3/10/2015
1868	College	AD	3	24.99	What will you study? Will you flunk out of school or earn honors status?	1	78	3/10/2016
1869	College II	AD	3	24.99	Freshman year at Syracuse University, how will you define your college experience?	1	254	3/10/2017
3214	The Legend of Zelda: Breath of The Wild	AA	3	39.99	Awaken from a 100 year slumber to explore and protect your region as Link.	1	64	3/10/2017
32145	Analyst II	RP	2	59.99	Take on the role of a new hire at the renowned Database Management corporation.	1	62	3/10/2015
32146	Analyst III	RP	2	59.99	Take on the role of an analyst and improve data management of Fortune 500 businesses.	1	128	3/10/2019
42785	Risk	ST	3	15.99	Your favorite board game brought to your gaming console.	4	28	3/10/2016
42787	Risk	ST	2	15.99	Your favorite board game brought to your gaming console.	4	28	3/10/2016
6789	The Elder Scrolls V: Skyrim	RP	1	59.99	A role-playing game set in the world of Skyrim. The 5th installation in the Elder Scrolls series.	1	500	3/10/2011

d. Source of Data

The ‘Monthly Sales-Summary Report’ data is compiled by various business processes. Some business activities include: Customer table is used to differentiate demographic variables by customers’ details.ated by several business activities.

- The Customer table is used to distinguish demographic attributes by customers’ information. This table is a list of all the customers because when a customer is registering to sign up at the Infinite Play store membership program table, he or she is automatically listed under the customers’ table. The Purchase and PurchaseLine table contain the figures of the purchases evidenced in the report.rated by several business activities.
- The Customer table is used to distinguish demographic attributes by customers’ information. The customer table contains a list of all customers who have signed up for the Infinite Play store membership program.
- The Purchase and PurchaseLine table list the number of purchases summarized in the report. The data is gathered from the activities connected to CIS® customers and products. They are recorded by employees when a customer makes an offer to buy their product. The Product table data is used as a standard which has been used to query the purchased game name to determine the most popular game.ties.
- The Purchase and PurchaseLine table list the number of purchases summarized in the report. The data is collected from transactions related to customers and products. Transactions are entered into the system by employees when a customer purchases a product.
- The Product table data is used as a standard which is used to find out the most popular game (purchased game) by its name. The data is recorded when the business purchases a new game from a distinct platform firm. This means that whenever new products are brought in the case data about a game is recorded on the table.

6.2) Business Report Design 2

a. Business Report Table

Table 7. Example of Monthly Training Employee Summary Report

Employee Training Review Summary				
For 1/1/2021 thru 1/31/2021				
Emp Name	Num Of Survey	Num Of Comment	TrainRate	Phone
Issac, Thomas	6	4	2.2	5145925332
Wilfred, Miller	1	1	2	9626064994

Table 8. Example of Monthly Incentive Employee Summary Report

Employee Incentive Review Summary				
For 1/1/2021 thru 1/31/2021				
Employee's Name	Num Of Survey	Num Of Comment	IncentiveTate	CurrentSalary
Elmer, Matthews	1	0	5	$14.00
Lorenzo, Allison	1	1	5	$15.00
Virginia, Hart	1	1	4.5	$13.25

b. A Short Narrative

With the intention of enhancing customers' satisfaction while they are shopping in the store, the Infinite Play store agreed to introduce the 'Employee Review system. The store implemented Employee re - training/incentive system based on customers' ratings. In this new system, the customer will have the option of rating the particular employee assisting them at the time the particular customer is in the store. Every time a customer pays at the cashier desk, there is always a question on the experience you had with a particular store employee, then you rate the employee on a scale of 1- 5, then give some comment thereafter, your experience. Managers will make decisions whether the employee needs training or needs to get an incentive by

reviewing the average survey rating each month. It is felt that the full point of survey rate is 5 and therefore if the average rate is greater than 4·5, the manager should encourage the employee. The manager needs to re–train the employee If the average rate is below 2.5. The agency does not require intervention if the average rate is between 2.5 and 4.5.It is very convenient to review employee's work, and act based on a different purpose.Capable of increasing the level of service deliveryCapable of responding to feedback that that customers give.Can always get more customers and regularly sell its products because of the enhanced quality of its customer services.o start an 'Employee Review system'. The store introduced an employee re-training/incentive system depending on customers' ratings. In this new system, customers will be able to rate the employees who helped them while they are spending time in the store. Once the customer checks out at the cashier desk, a cashier will ask about their experience with the store's employees, the customer then rates the employee from 1-5 and makes some comment following by their experience. Managers will make decisions whether the employee needs training or needs to get an incentive by checking the monthly average survey rating. The full point of survey rate is 5, if the average rate is higher than 4.5, the manager should provide an incentive to the employee. If the average rate is lower than 2.5, the manager should re-train the employee. If the average rate is between 2.5 and 4.5, no action is required. Through introducing this new employee rating system, the Infinite Play game store can expect to gain benefits as follows:

- Easy to review employees' work and react based on different purpose
- Able to improve the service quality
- Able to respond to customers' feedback
- Can expect to secure regular customers and increase sales due to improved customer service quality

b. SQL Queries

For the monthly Employee Review report, the date range could change depending on needs. The normal monthly date range is from the first day of the month to the last day of the month. These dates embedded in the first queries that produce the report.

Query 1) Find each employees' average score and name it as 'Business_T2_1 Table'

```
1
2  SELECT
3      e.EmpFName,
4      COUNT(s.SurveyID) AS CountOfSurvey,
5      ROUND(AVG(s.SurveyRating), 1) AS AvgOfRating,
6      COUNT(s.SurveyComment) AS CountOfComment
7  FROM
8      SURVEY s
9  JOIN
10     EMPLOYEE e ON s.EmpID = e.EmpID
11 WHERE
12     s.SurveyDate BETWEEN '2021-01-01' AND '2021-01-31'
13 GROUP BY
14     e.EmpFName
15 ORDER BY
16     e.EmpFName;
```

Result –

EmpFName	CountOfSurvey	AvgOfRating	CountOfComment
Elmer	1	5	0
Gladys	5	4.2	0
Isaac	6	2.2	4
Lorenzo	1	5	1
Virginia	1	4.5	1
Wilfred	1	2	1

Query 2) Find employees whose average rating score is less than 2.5.

(Based on the result from the assessment report, this lists the employees' names who need training for the month.)

```
2  WITH Business_T2_1 AS (
3      SELECT
4          e.EmpFName,
5          e.EmpLName,
6          COUNT(s.SurveyID) AS CountOfSurvey,
7          COUNT(s.SurveyComment) AS CountOfComment,
8          ROUND(AVG(s.SurveyRating), 1) AS AvgOfRating
9      FROM
10         SURVEY s
11     JOIN
12         EMPLOYEE e ON s.EmpID = e.EmpID
13     WHERE
14         s.SurveyDate BETWEEN '2021-01-01' AND '2021-01-31'
15     GROUP BY
16         e.EmpFName, e.EmpLName
17 )
18 SELECT
19     CONCAT(e.EmpFName, ', ', e.EmpLName) AS EmpName,
20     b.CountOfSurvey AS NumOfSurvey,
21     b.CountOfComment AS NumOfComment,
22     b.AvgOfRating AS TrainRate,
23     e.EmpPhone AS Phone
24 FROM
25     EMPLOYEE e
26 JOIN
27     Business_T2_1 b ON CONCAT(e.EmpFName, ', ', e.EmpLName) = CONCAT(b.EmpFName, ', ', b.EmpLName)
28 WHERE
29     b.AvgOfRating <= 2.5
30 ORDER BY
31     EmpName;
```

Result –

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

	EmpName	NumOfSurvey	NumOfComment	TrainRate	Phone
▶	Isaac, Thomas	6	4	2.2	5145925332
	Wilfred, Miller	1	1	2	9626064994

Query 3) Find employees whose average rating score is more than 4.5

(Based on the result from the assessment report, it will determine which employees should earn incentive)

```
WITH Business_T2_1 AS (
    SELECT
        e.EmpFName,
        e.EmpLName,
        COUNT(s.SurveyID) AS CountOfSurvey,
        COUNT(s.SurveyComment) AS CountOfComment,
        ROUND(AVG(s.SurveyRating), 1) AS AvgOfRating
    FROM
        SURVEY s
    JOIN
        EMPLOYEE e ON s.EmpID = e.EmpID
    WHERE
        s.SurveyDate BETWEEN '2021-01-01' AND '2021-01-31'
    GROUP BY
        e.EmpFName, e.EmpLName
)
SELECT
    CONCAT(e.EmpFName, ', ', e.EmpLName) AS EmpName,
    b.CountOfSurvey AS NumOfSurvey,
    b.CountOfComment AS NumOfComment,
    b.AvgOfRating AS IncentiveRate,
    e.EmpSalary AS CurrentSalary
FROM
    EMPLOYEE e
JOIN
    Business_T2_1 b ON CONCAT(e.EmpFName, ', ', e.EmpLName) = CONCAT(b.EmpFName, ', ', b.EmpLName)
WHERE
    b.AvgOfRating >= 4.5
```

Result –

EmpName	NumOfSurvey	NumOfComment	IncentiveRate	CurrentSalary
Elmer, Matthews	1	0	5	14
Lorenzo, Allison	1	1	5	15
Virginia, Hart	1	1	4.5	13

c. Tables Used to Generate the Documented Report

Employee table, Survey table, and Business_T2_1 which was generated by using Employee and Survey tables. These tables were employed to generate the 'Monthly Employee Review Report'. Employee table was used to identify the employees' information and salary. Survey table was used to collect the customers' feedback on employees. Lastly, Business_T2_1 table was used to extract the information to help the managers understand individuals' monthly ratings and their behavior to make further decisions.

Table 9. Example of 10 Rows from Employee Table

Employee							
Emp ID	**Emp PositionID**	**Emp FName**	**Emp LName**	**EmpPhone**	**EmpDoB**	**EmpStartDate**	**EmpSalary**
50001	J001	Stacy	Lamb	5032938879	10-Nov-90	9/15/2007	$6,000.00
50002	J002	Woodrow	Hines	8357126436	15-Oct-92	29-Jun-14	$4,000.00
50003	J003	Virginia	Hart	4056665218	07-Jan-84	18-Dec-91	$13.25
50004	J003	Wilfred	Miller	9626064994	26-May-90	08-Aug-08	$13.25
50005	J003	Gene	Morton	5823647647	31-May-87	19-Jun-94	$16.00
50006	J003	Isaac	Thomas	5145925332	03-Nov-73	15-Mar-75	$15.00
50007	J004	Lorenzo	Allison	4336542417	13-Nov-82	28-Dec-13	$15.00
50008	J004	Luis	Figueroa	6934012852	12-Jan-77	16-Mar-81	$14.00
50009	J004	Duane	Fowler	1647536424	17-Sep-96	05-Jun-05	$14.00
50010	J004	Arturo	Webb	5799478166	20-Jun-91	13-Jun-98	$15.00

Table 10. Example of 10 Rows from Survey Table

Survey						
Survey ID	**Purchase ID**	**Emp ID**	**Survey Date**	**Survey Time**	**Survey Rating**	**Survey Comment**
80001	1212	50003	1/23/2021	10:45:00 AM	4.5	Virginia is very kind and explained me very detail
80002	1213	50004	1/23/2021	11:01:00 AM	2	Wilfred was very nice
80003	1214	50006	1/23/2021	11:45:00 PM	2.5	Issac did not know the game I wanted to buy
80004	1216	50006	1/23/2021	12:15:00 PM	1	Issac was so busy I could not even ask
80005	1217	50007	1/24/2021	9:10:00 AM	5	Lorenzo is an expert of video game, he knows everything
80006	1218	50006	1/24/2021	11:30:00 AM	3	
80007	1219	50006	1/24/2021	11:38:00 AM	2	Issac does not understand about game and he did not help me
80008	1220	50006	1/24/2021	12:25:00 PM	3	
80009	1222	50006	1/24/2021	12:45:00 PM	1.5	Issac is so busy, I rather decided to find the game by myself
80010	1223	50014	1/25/2021	12:59:00 PM	4	

Table 11. Example of Business_T2_1 Table (Query 1)

Employee Review Summary			
For 1/1/2021 thru 1/31/2021			
Emp Name	Num Of Survey	Num Of Comment	TrainRate
Issac, Thomas	6	4	2.2
Wilfred, Miller	1	1	2
Elmer, Matthews	1	0	5
Lorenzo, Allison	1	1	5
Virginia, Hart	1	1	4.5
Gladys, Mcguire	2	4.2	0

d. Discussion of the Data Sources

The data from this report is generated by the survey collection activities and employee enrolling activities.

- The Survey table is used to identify the average rating of employees in the report. As it is mandatory to be in the report list, the survey will be conducted to the customers every time after check out. Customers can select the rating between 1 to 5, thus once the survey is over, the cashier will input the information on the survey table, along with the date and time. There is the Employee table that comprises the list of all the employees that are working in the store.y collection activities and employee enroll activities.
- The Survey table is used to identify the average rating of employees in the report. Since it is crucial to the list in the report, the survey will be asked to customers every time after check-out. Customers can choose the rating between 1 to 5, and when the survey is completed, the cashier will store the information on the survey table with date and time.
- The Employee table contains a list of all employees who are working in the store. Information of the employees is used on the reports for the assessments purposes. The data are introduced during employment when engaging the employees for business. The manager will keep personal data such as name, phone number and email address together with date of birth, job data such as job title and salary paid.

7) Database Life Cycle Framework: Video Game Store Project Implemented is known as Infinite Play.

The **Infinite Play Game Store** project followed the six phases of the Database Life Cycle (DBLC): It has the phases of investigation, design, development, integration, verification, accreditation, and the support and sustaining phases. The project arrived at the testing stage with some progress to address the problems that was named.

In the first study, we identified difficulties of the store including data management and services resulting from the use of fragmented, duplicated, and poorly arranged spreadsheets. The database was designed for the improvement of services and training of the staff, as well as for low-cost internal software applications.

In the design phase we produced a conceptual model using an Entity-Relationship Diagram (ERD) produced in MS Visio where upon we created a more detailed logical schema in Excel and a physical implementation in MySQL Workbench. Thus, careful work was done to design the physical level to be as efficient as possible and with minimum redundancy.

The database was constructed in MySQL Workbench at the implementation stage, with data import done through queries in SQL. This step focused on optimizing relational tables that the business needs to develop and maintain.

During the testing phase, the simulation showed that the database complied with integrity, security, and performance requirements that imposed and maintained primary and foreign key constraints. This led us to recommend more protective features like encryption to the data besides setting back-up strategies in cases where there may be loss of data or even cases of break-ins.

In subsequent phases, operational and maintenance will focus on realistic challenges, improved data security, and appropriate permission settings. By frequently updating the database to facilitate compliance with emerging organizational needs, there is flexibility, stability, and ongoing enhancement of customers' satisfaction and organization operational performance.

8. Conclusion

Continuation and extension of the database system offers a fundamental infrastructure for the improvement of marketing activities. Whereas, Infinite Play game store's spreadsheet can only record the total number of transactions, the presented database system can analyze customers' purchase behavior, kind of product, and complaints based on the closely related table of the relational database. When using the information from the current database, and the employee's rating, it is possible to determine the ways of retaining the particular customer or increasing the rate of store visits frequently. However, Customer Relationship Management activities can work fine only when the data related to the same flow is well maintained and updated. Namely, to employ basic customer data to update the data continuously in the database accurately and link the cleansing tools to the database are required. Eventually, as the business grows the database may require the introduction of more business rules or it can enhance and reduce the rights of the employees regarding the use of this database. So, databases can respond to these situations, just the iterative approach for the evaluation and revisions is the way to get closer to the complete Database Life Cycle.

At face value, it seems almost obvious that following up a poor product with exceptional customer experience is a good thing. The brand which delivers this value is the brand to which the customer can interact with. Customer service that produces the best experiences costs 140 percent more than those with the worst experiences, according to a Harvard Business Review. While customers are dissatisfied with customer service it will only increase by 40% sales per customer and there will be nearly no visits to the store again factor. > (Kriss The Value of Customer Experience, Quantified)

The introduction of a new database appropriate to the Infinite Play Game Store will remove bottlenecks remaining in existing revenue patterns as well as open up an additional 140% potential for increased revenues and also make higher quality, more proficient customer service provided: systematic management of Human Resources.