**Mission #3 – Muhammad Hassan – Final Project**

**Analysis of the problem:**

They food management department system are operating on a very outdated system where everything is done manually. May it be the payment counters or keeping a track of daily sales or order inventory, this system is not suitable enough to cope with the number of customers Super Fun Park hosts.

**Solution of the Problem:**

The first part of my proposal is to introduce Super Fun Park’s prepaid cards. These cards will be issued to the customers once and they can use it for how many times they visit the Super Fun Park. They will use this card for rides, food restaurants, parking and performances. There will be several counters around the park for customers to insert money in their cards.

When the card will be issued, Super Fun Park will have the following information of the card-holder: Name, D.O.B., Driver License Number, Address and # of Family Members. This will help Zippy Mouse in keeping a track of Permanent Customers. Not only that but this will allow the marketing department to develop reward programs and marketing material accordingly.

One of the main problems that this card will fix is the different mode of payments at different locations. By using this technology, Zippy Mouse will be able to keep a track of daily sales for inventory purposes, annual sales will be very easy to calculate and he will have a much better understanding of how the park food system works in different seasons. Not only that, he will also be able to know the identity of the Customers who are getting food from different restaurants.

This technology will also eliminate the need to count each register at the end of night in different restaurants and this way a lot of manpower will be saved.

The next part of my proposal requires us to do some art-work to determine how the details we get from customers can be made beneficial by departments to solve the problems in this mission.

A) By using Super Fun Park’s prepaid card, Zippy Mouse will have the following information of the customers:

Car Number Plate

Address

Date of Birth

License Number

Contact Number

Money used at different venues

# of Family Members

No. of visits in a season

B) What Food Management Department needs to solve its problems?

Order inventory accordingly

Keep a track of Food

Single form of money used

Understand what attracts customers more

Calculate total sales for a day efficiently

When did customers bought it?

Who bought the food?

Calculate Annual Sales

What was purchased?

Where was the food bought?

C) What Marketing Department needs to develop marketing promotions accordingly?

Which was the most attractive ride?

Which restaurant was most profitable?

Who comes from far?

How often locals visit?

Who visited regularly?

Peak Hours?

Which food item from every restaurant was most demanded?

Busiest month?

Average number of families visiting on weekdays/weekends?

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Average # of visitors on rainy/non-rainy days?

Most successful concert

D) What the Accounting Department needs to solve its problems?

Annual sales report from every restaurant

Daily sales at every restaurant

Who is buying the food?

Cost of inventory of every restaurant

Most profitable month

Least profitable restaurant

Most Profitable restaurant

To derive some results from the above represented art work, let’s create a database schema below which should help Food Management department, Accounting department, Marketing department and Office of the Zippy Mouse.

Below mentioned three database entities can be accessed by the Marketing Department, Office of the Zippy Mouse. Only Customer’s Balance can be accessed by the Accounting Departing. Also, CustomerID is a unique number and is the same as the number on the pre-paid card issued to every customer.

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**Customers: (CustomerID**, LicensePlate, Address, ZIPCode, NumberOfFamilyMembers, ContactNumber, FirstName, LastName, NumberOfVisitsThisSeason)

**Customer’s Balance:** (CustomerID, **TransactionID**, PreviousCardBalance, AddedAmount, BalanceAfterAddedMoney, LastAddedDate, AddedMoneyAltogether) -- **‘*AddedMoneyAltogether’*** *represents the money customer has added in this card from the beginning.* Foreign Key – Customer ID, references CustomerID from Customers table.

**Visitors:** (Date, WeekNumber, **CustomerID**, NumberOfFamilyMembers, Weather (Rainy or Non-Rainy)) -- \**Weather (Rainy or Non-Rainy) \** is to be typed in manually by the person responsible for overviewing the database. Foreign Key - CustomerID, references CustomerID from Customers table.

The database entities mentioned below can be accessed by the Food Management Department, Accounting Department, Marketing Department and Office of the Zippy Mouse. Restaurant Sales include a central database of all the sales in all restaurants for a day and ‘Restaurants’ contain the Restaurant name along with their restaurant number.

**Restaurant Sales: (RestaurantNumber, Date, Order#**, TellersEmplID, OrderDetails, OrderBill, CustomerID)

Foreign Key – CustomerID, references CustomerID from Customers.

**Restaurants:** (**RestaurantNumber,** NameOfRestaurent)

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The above-mentioned DBMS will have some of the following properties and solve the following issues:

* When the Customer will visit the Super Fun Park for the first time, all the attributes in the ‘Customers’ entity will be filled out and ‘No. OfVisitsThisSeason’ will be set to 1.
* However, ‘No. OfVisitsThisSeason’ will be incremented by 1 whenever the Customer comes in the next time in the same season and swipe their Super Fun Park’s prepaid card in the parking entrance.
* The Marketing Department will be able to get all the details and develop promotional offers for customers using the entities ‘Visitors’, ‘Restaurant Sales’ and ‘Customer’s Balance’.
* Every Restaurant will have a unique restaurant number and that number will represent that restaurant in the ‘Restaurant Sales’ table.
* The Marketing Department will be able to get all the details they want of the Food Restaurants from the entity Restaurant Nameand Restaurant Sales.
* The Office of Zippy Mouse will be able to understand the Food System better and introduce new items to the menu.
* The Food Department will be able to keep a track of all the sales of day, week and year of every restaurant independently and create views per their requirements.
* The Accounting and Food Management Departments will now be able to know who brought the food, when did they buy it, what did they buy and at what restaurant.
* The Marketing Department and The Office of Zippy Mouse will be able to expect visitor turnout for different months of the season and per the weather.