System requirements and context level diagram computer science essay

Business, Management

" FastTrack ' Trains is a new train service that seeks to hit the market strong because of its advanced reserve system. A Based on the success of Euro Star, Fast Track will be taking a similar attack with respects to fun trains, unassigned seating, and standardized train infrastructure. AThe chief end of the system is to supply on-line engagement of the train tickets so that the client can acquire benefit of exact engagement and the wastage of the clip will be reduced. The system work as followsOnce the user made his entry with the web site so he will look into for the handiness of a peculiar train in which he want to go, twenty-four hours and the clip. If the seats available so the user has to give his information and his reserve will done successfulThere are two possibilities exists with this application they areThe user will acquire the reserve for the train for what he is looking for and the twenty-four hours and clip.

The user ca n't acquire the reserve for the train he will seek for the following handiness of the train

System Requirements

Context Level Diagram

Structured Chart

Link: hypertext transfer protocol: //www. slideshare. net/joveria/railway-reservation-software-documentaion-536753For this attack the database manages 4 different database tabular arraiesThey arePassengerTrain_InfoReservationEmployee

Passenger tabular array

The Fieldss of the tabular array areCUSTOMER_ID Data type NumberNAME

Data type TextAddress Data type TextContact Number Data type Number

Reservation Table

Reservation Number Data type NumberCustomer_ID Data type NumberTrain

Number Data type NumberSeat Reserved Data type MemoFare Data type

CurrencyDate Data type DateTrain_InfoTrain Number Data type

NumberStarting_Station Data type TextEnding_Station Data type

TextStart_Time Data type Date/TimeArrival_Time Data type

Date/TimeNumber_of_seats_Reserved Data type Number

Employee_Info Table

Employee_Id Data Type NumberName Data Type TextContact_Number Data

Type NumberEmployee_Role Data Type TextScreening the Employee tabular

array in go uping order based on Customer IdSQL position

Literature reappraisal

1. 1DataBase

Data base is a group of informations that organized in a logical manner.

Datas can be any meaningful object or component including Numberss,

alphabets, images and pictures. sDBMS (Data Base direction System) is a

package that developed for maintain the big aggregation of

informationsDBMS was invented by Charles Bachman in twelvemonth 1960

and ab initio called as Integrated Data Store

1. 2File system VS DBMS

Before Database developed files are used to hive away heavy informations and procedure that informations. Which are besides helpful in now a yearss to keep the back ups of a database.

Apart from the usage of the file systems their disadvantages summed up as followsRepeat of the same informationIt is difficult to keep the information about each file like name of the file, type of informations it ' s hive awaying and so onIt takes much clip for planing each and every file and the developers has to make this undertakingSolution for above mentioned all the jobs is DatabaseDB maintains the information in a convenient and standard signifier. The information is arranged in different tabular arraies which are easy to entree, update and deleteDBMS importance can be explained with the following points asIf a company maintains informations which is larger than 4GB size which we can non entree straight from a computing machine system so their demand a plan for acknowledging the informations pointsThe information that is really often accessed by the users and the alterations made by them will do the inconsistent. So the security is needed to the information from the sudden alterations. An Operating system assigns a watchword for the protection of the information this is non sufficient for a majority database so different entree permissions are given to the different information degreesIf their any system clangs happens so it has to be restored in a efficient method1. 3 Advantages of Database Management SystemData Independence: The utile for an application plan must be independent a DBMS provides the top degree position of the informations to

acquire the needed inside informations to the user. Efficient Data Access: DBMS has figure of techniques to hive away and recover the information. It is largely helpful in hive awaying the information in external devices.

Data unity and security: If the information is accessed from a DBMS all the clip so it forces to implement the unity constrains on the information. So it is easy govern the entree controls of the different users and on which portion of informations they are movingData Administration: when multiple users are accessing informations from a database the experient developers can supply the inside informations of the informations. Coincident entree and crash recovery: The decision maker of the information has to schedule the database in such manner that merely one user can entree it every clip. So the clangs and failures in the system will be reduced. Reduced application development tools: The informations accessing clip will be reduced by utilizing a DBMS so it automatically increases the application development velocity (Raghu, 2000)Raghu Ramkrishnan, Johannes Gehrke (2000) " Database Management Systems " Second EditionDifferent constituents of a Database System areCASE ToolsDepositoryDBMS (Database Management System)DatabaseApplication PlansUser InterfaceDatabase decision makersDevelopersEnd Users (Kabay, 2010)M. E. Kabay (2010) " Introduction to DBMS " hypertext transfer protocol: //www.

mekabay. com/courses/academic/norwich/is240/lectures/02_intro_to_dbms. pdf [1/26/2010]A information base tabular array consists figure of rows and columns where as the first row represent the names of the different Fieldss

of the tabular array and the columns consists of the values for that peculiar field.

Primary Key

A primary key is a alone value for the filed of a database. It available with the tabular array automatically or created by the database.

It can be a individual field or combination of Fieldss. In a train reserve system Customer Id is the primary key for the rider tabular array where we can acquire the information of a specific rider depending on that. But we ca n't utilize the name of the rider as the primary key because the names may non be alone but the system generated value Customer ID will be alone.

Foreign Key

A Foreign key is a filed in one tabular array that matches with the primary key of another tabular array. It can be used bind up two different tabular array based on a field.

1. 4 Standardization Techniques

It is a procedure of set uping the information in a database really expeditiously. The chief purpose of standardization is to extinguish same informations in a information base and hive awaying all the related informations in the one tabular arrayThere are 5 normal signifiers are available to the informations base developers they are as followsFirst Normal Form (1 NF)Second Normal Form (2 NF)Third Normal Form (3NF)Boyce-Codd Normal FormsFourth Normal Form (4NF)Fifth Normal Form (5NF)

First Normal Form (1 NF)

In order to see a database that is in first normal signifier all the relation in the tabular array has to fulfill following stairssEach column has to incorporate merely one valleyAll the given values of the column must be of the similar typeDo n't give same values for all the Fieldss of any two rowsThe order of columns and rows will non findThe Fast Track Database contains a tabular array called rider with the column names as Customer Id, Name, Phone figure and reference

Customer ID

Name

Telephone figure

Address

123RINKU5532467YARKSHRIE124SONY9876743Trenton125Smith8765434Brunswick126SONY655437YARKSHIRE127Ron4877665BrunswickThe tabular array satisfies the 1 NF because each every filed has given merely one value and the values of column belongs to same type i. e either Numberss or text.

No two rows holding the same values in all the Fieldss

Second Normal Form (2 NF)

A relation is said to be in 2NF if all other field values are dependent on the primary cardinal field. If a tabular array contains merely two Fieldss one is primary key and one more filed so it is automatically in 2NF. If a tabular array non satisfies the 2NF if it ' s holding more figure of Fieldss so it is split

into two or more tabular arraies harmonizing to the regulations. If we take

Reservation tabular array from the Fast path database

Reservation

Number

Customer ID

Train

Number

Seat

Reserved

Carnival

9004512325556112 A$ 209004612422344155 C$ 139004712527865276 B$

509004812676362932 A$ 289004912787650043 C$ 10So it can be divided

in to 2 other tabular arraies asTable one contains 2 Fieldss as Reservation

Number, Customer Id and Fair for the tripThe following tabular array contains

Reservation Number, Train Number and Seat Reserved

Reservation

Number

Customer ID

Carnival

90045123$ 2090046124$ 1390047125$ 5090048126$ 2890049127$ 10

Reservation

Number

Train

Number

Seat

Reserved

90045

255561

12 A

90046

223441

55 C

90047

278652

76 B

90048

763629

32 A

90049

876500

43 C

Third Normal Form (3 NF)

If a relation satisfies the 2nd normal signifier and the transitive dependences so is in the 3 NF.

IF a relation R is holding 3 properties called A, B and CA – & gt ; BA andA B – & gt ; CA thenA A – & gt ; CThe Employee_Info Table of the database holding 4 Fieldss as Employee Idaho, Name, Contact Number and Employee function. Here Employee Id is the primary key so we can acquire the name of the employee utilizing the primary and so based on the name we can acquire the Employee function and contact figure. Employee_Id – & gt ; Employee NameEmployee Name – & gt ; Contact NumberEmployee Name – & gt ; Employee Rolehypertext transfer protocol: //www. cs. cityu. edu. hk/~helena/cs34622000B/Normalization.

pdfLeo Mark " Normalization " hypertext transfer protocol: //www. cc. gatech. edu/classes/AY2009/cs4400_fall/normalization. pdf [1/27/2010]

Employee

Gem state

Employee Name

Contact Number

Function

675Sonu4567732Driver676Sunny3445734Ticket checker677Sam2786544Director678Don1223222Military officer679Joe9876565House Keeping

Employee

Gem state

Employee Name
675Sonu676Sunny677Sam678Don679Joe

Employee Name

Contact Number

Function

Sonu4567732DriverSunny3445734Ticket

checkerSam2786544DirectorDon1223222Military officerJoe9876565House

KeepingEmployee_Info tabular array can be divided into two other tabular

arraies so that it can fulfill the 3NFWe have two types of informations base

package ' s are availableDesktop databases like Filmmaker pro and Microsoft

entreeServer side databases like Oracle, MySQL and Microsoft SQL waiter

Micro Soft Access

It is the package available freely with the Microsoft bundle so no disbursals

are made for making databases. This is the most popular desktop database

on the EarthIt is really easy to implement and make databases in a simple

method compared to Oracle and SQL Server. It allows upper limit of 15

people can work on the database at the same clip, updates the questions,

studies and signifiers with high velocity. It is portable plants on different

runing systems like Windows XP, Windows 2000, Windows 98 and Windows

ME. Throw this package the distant users can besides entree the database of

a web site. We can utilize it with the other Microsoft merchandises like Excel,

Word, and Outlook etc. SorenLauesen (2007) " MicrosoftAccessTutorial "

hypertext transfer protocol: //www. itu. dk/~slauesen/UID/AccessTutorial. pdf

Decision

This system contains a to the full developed database that is with the MS

entree package All the needed information for a reserve of a train are stored

with the aid of different tabular arraies and the 1NF, 2NF and 3NF techniques

applied to the database tables so the information base normalized. A set of

quires executed across the tabular arraies to capture the information like

Updating deleting and doing the in Ascending or falling order and so on