Online Ticket Booking System

Software Engineering Project Report
(CSHP - 410)

Submitted by:

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Problem Statement

Sometimes there is a need of finding most exotic and affordable events, trips and exciting adventures happening around the world. It comes with the need of choosing the best ones among them.

Using this web portal, users living anywhere in the world can book tickets easily in no time for the best varieties of events and trips discovered using data analytics tools at reasonable prices within the comfort their homes.

Process Model

The model used in our project is the waterfall model.

Firstly, all the requirement that are required in the development of the project are well known and specified before the development of the application begins. After we know fully that what all functional requirement, performance requirement and all the technology are needed then we start designing our project which is to make the architecture and database. After all this set up is done, we start our coding after which follows the check to check if what is made is correct or not after all the tests we maintain that project.

Thus this model suits best for the project.

1. **Software Requirement Specification**

1.1 Overall Description

Online ticket booking system is a web portal where you can book ticket in advance for events like concerts, trips, sport adventures, theatre shows, stand up comedy shows, and many more not only in India but all around the world.
The web portal is easily accessible and is user friendly that provides certified user rating so that users can book the events happening around the world.
Our payment system accepts common all modes of payment, so that every user is able to pay easily and efficiently.
The user can know everything about the event and compare it with other events happening around the world to find the one that suits him/her just by sitting on the couch.
There is no need to search so long for all events happening around the world in different cities.
The portal provides all the information at one place with easy ticket booking system.

1) Category

 Web application

2) Purpose

The purpose of making online ticket booking system is to book the tickets for any events like concerts,theatre shows,trips,comedy shows etc. by just sitting in your home at at your leisure rather than standing in those big lines for hours to book tickets.

3)*Introduction*

It contain two sub category:-

Previous system: Before the online system to book events there were booking done by manual methods or semi automated system in which you have to go to some particular place to book tickets.Manual system involves paper work in the form of maintaining various files and manuals.Maintaining critical information in the form of files is full of risk and tedious work.

1) It is a limited system and not very user friendly.

2) searching for any particular event would take a lot of time.

3) In this user have to travel a particular place in order to book tickets which itself will take a lot of time and cost.

4) At that place of booking also there might be big lines or all the tickets might be sold.

5) All the information is saved in files.

6) This system give us less security and the loss of data may take place due to mismanagement.

4) *Advantages*

Online booking system facilitates remote booking and instant payment,which is convenient to both user and faculty team.

Unlike traditionally, bookings can happen round the clock and all the information can be directly entered into the system which reduces human errors.

Online booking system ensures convenience and comfort to guests and a peace of mind.No last minute rush to get ticket and fear of housefull.

This leads to greater sales and with the help of mail facility they can get to know what are the events happening and if they like it then they can book the ticket for that too leading to market strategy.

The system is very reliable and secure as if we make a login then the mail is send to you and also when you press forgot password mail is send to you which shows that the system is reliable and secure.

1.1.1 Product Functions

- In this system the user need not to go to a particular location to book ticket it can be done at home at their leisure. Also this system provide efficiency, accuracy and cost saving. So, it provides many benefits over the manual system.
- There is a convenience of booking online at home then to stand in lines.
- The customer can book the ticket at any time even at night and there is no need for any staff member to be present at that time.
- Unlike offline reservations where you have no idea where the lead came from, the source of any online reservations can be easily tracked through numerous tools available.
- You can compare among the events which is better for you from any perspective like the place of event or the cost or any other factor.

1.1.2 User Characteristics

The types of users of the web portal will be:-

1. Visitors/Registered Users
2. The Admin

1. The Visitors/ Registered Users:

One field will appear asking for the desired location. The visitor can select the desired place from the dropdown list.
The page will have search option, wherein the visitor can search for the desired category. Also, there will be a menu button which will contain all the categories.
There is one filter option with some fields like date, price range, location category of event.
After the filtering is done only the events which satisfy these needs will be shown.

The page will contain few events of the category like most popular events, exclusive offers and discounts on events, newly added events, travel, adventures & outdoors, conferences, seminars & meetup, and entertainment.
 And in all of this category will have some (5-6) events placed in and on every event will have some information like name of the event, date, ticket price in NCR, address.
 Below these categories are the links for today's, tomorrow's, this week, this weekend, this month, all dates event.
 When the user clicks on his desired event to buy ticket then another page opens up which shows some images related to the event, description about the event like what it all about, timings for the show, number of people(which can be divided in children below 13 years, adults, added more than 60), total price for the ticket.
 If the visitor had filled all the information on this page and then clicks on pay button then a popup will appear saying first sign up and below it is button for sign up.
 For the sign up following details are required:- name, email id, password, scroll bar for the type of category, scroll bar for the days on which mostly interested which contain option like weekends, holidays, summer time, winter time. 'or' sign up with google or facebook option
If the visitor has visited some event then those are shown in the one category called recently visited events.
 The registered user when comes up with the intention to go for an event then firstly user will sign in for the site and then lands on the site,
    1)firstly user will choose the desired location
    2)and then by using the filter option user can set all option accordingly like:-date, price range, category of events 'or' search for the desired event 'or' select from the menu bar the category of events 'or' select from the displayed category of events on the page itself like:- newly added,popular,exclusive offer with discount.
    3)when the user gets the desired option by any of the way ,clicks on it then,
    4)choose the no. of people :-children,adults,aged and accordingly gets the total price.
    5) if any discount then the code will be provided on the mail which needs to be filled on the text box provided below and total price after discount will be shown.
    6)The user then clicks on pay button.
 The registered user are keep updated through the mail services by analysing on which events they have already visited and what they choose during the sign up time
 and the events on which discount is there.
The registered users will get the timely updates through mail of the similar events and the genre that matches their preferences and also the appropriate discounts.
 Even if their location is nearby where some event is happening then also they are informed through mail service.

2. **The Admin:**
The admin will responsible for adding receiving and deleting events.
The admin will have a separate login id and password.
On logging in, the admin will find a page with a sidebar with all the required settings to make amendments in the site, for example adding, deleting, updating events, number of registered users and their information, number of visitors, offers and discounts, payment settings, availability of events, organizers and their information,
online payment system etc.
A separate database will be made for all the events as well as the users.
The database for the user will be having fields like name, phone no., email ids, most liked events, days which are most popular, number of registrations made etc.

The database for the events will contain fields like number of tickets available, duration of the event, number of tickets sold, similar events etc.

A poll for the user to select their favourite event will be present from which the admin will find out the best events.

As per the most popular events stated by the users, admin will analyze the events on the weekly basis and will provide the analysis to the user by displaying the poll results.

Also, the events will be assessed on the basis of the number of tickets sold. The event which has lesser number of sold tickets will be promoted more on the web portal.

The admin will also provide discounts to the user that purchase tickets more than 10 at a time. Also timely offers and discount will be provided to the registered users.

The registered user are keep updated through the mail services by analysing on which events they have already visited and what they choose during the sign up time
and the events on which discount is there.

Payment System

Our website will ask the user for the mode of payment. our payment system will accept 4 common types of payment methods(credit/debit card, net banking, wallet, UPI). It is important that the user already have an account at least in one of the payment method. when the user chooses one of the mode of payment, the website will automatically direct the user to the appropriate page.

1. credit/debit card:
        Once the user chooses the credit/debit card option as their payment method the user have to enter some details like the card number, the month and year in which the card expires, card holder's name,and security code. For Visa ,Mastercard, and Discover, the three digit security code will be printed on the back of the back of the card after the credit card number. The four digit security code for American Express credit cards(printed on the front-right of the , directly above the credit card number). After entering all the details and clicked the confirm option by the user, the user need the password to authenticate the transaction. An OTP by SMS or e-mail will be sent to the user for the authentication and the password can only be used once and it remains valid for a limited period of time only. If the OTP is expired the user have to choose the re-sent OTP option for the confirmation. If the transaction is done the user receives transaction confirmation SMS or e-mail. In the end payment is completed and the receipt window will open.

2. Net banking :
        Once the user chooses the net banking option as their payment method, the user have to choose the bank for net banking in which the user already have an account (like Axis Bank, HDFC Bank, ICICI Bank, State Bank of India etc). Then the user login in to the account by entering the User ID and password. once the user logged on to the account the website will redirect to the page where all the information are available about the payment. when the user click on the confirm button a confirmation code will be send to the user's mobile number and the user have to put the same code in the code box and confirm, the payment will be submitted. SMS of transaction confirmation is sent to the user. In the end the receipt window will open.

3. Wallets(like paytm, phonepay and many more)
        Once the user chooses the wallet option as the payment method, the user have to select different option available for the the wallet payment like paytm, phone pay, google pay and many more). different procedure for different application but the user need necessary details like phone number, name, type of payment, etc. SMS of transaction confirmation is sent to the user. In the end the receipt window will open.

1.1.3 Assumptions and Dependencies

1. Roles and tasks are predefined.

2. User and admin would require complete knowledge of the online ticket booking system.

3. Any data entered by him/her will be valid.

4. Back up of the databases in case of hardware failure.

5. No data loss in case of handling of the system by the admin.

6. Username are valid email addresses of respective user.

7. Admin has the authority to reserve/cancel movie tickets.

1.2   Functional Requirement

- User must have valid login id and password to login thus creating their individual profile.
- Search results should enable users to find the most recent and relevant booking options.
- System should have filter option which have fields like location, price range,date,no. of people and should show the result matching all criteria(if possible) or few.
- System should enable users to pay for their tickets only after tickets being added to the cart.
- System should only allow users to move to payment only when mandatory fields such as date, time, location has been mentioned.
- System should calculate the total price for tickets according to the no. of people (children,adult,more than 60) and also the total price after applying the coupon if any discount is provided.
- System should consider timezone synchronisation when accepting bookings from different timezone.
- Booking confirmation should be sent to user to the specified email provided.

1.3 Performance Requirement

- Search results should populate within acceptable time limits.
- System should not allow any invalid inputs.
- System should accept payments from all kinds of payment option like:- debit,credit.paytm,paypal etc.
- System should visually accept as well send booking confirmation to user contacts.

1.4 Design Constraints

Software Requirement

- Database Server:-Microsoft SQL Server-2012
- Client:- any web browser
- Programming language:- c#,net

Hardware Requirement

- Processor:- Intel corei5
- Ram:- 4GB
- Hard disk:- 640 TB

Deployment
- Operating system server:-
  Windows,Linux,Unix.

1.5 Data Flow Diagram

Context Level Diagram
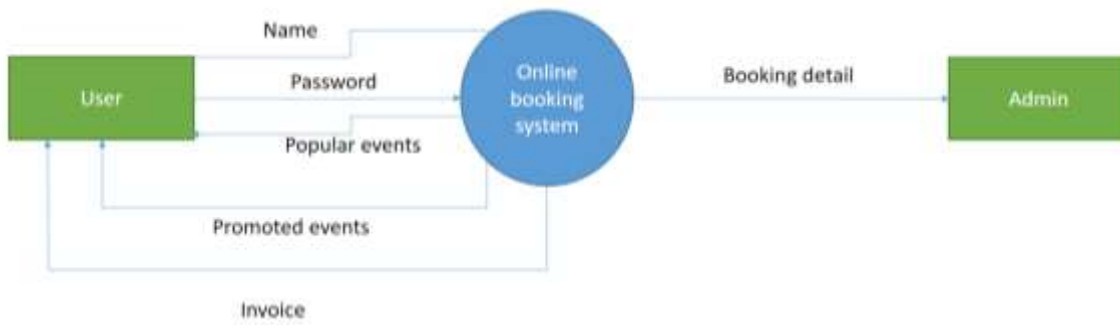
Level 1
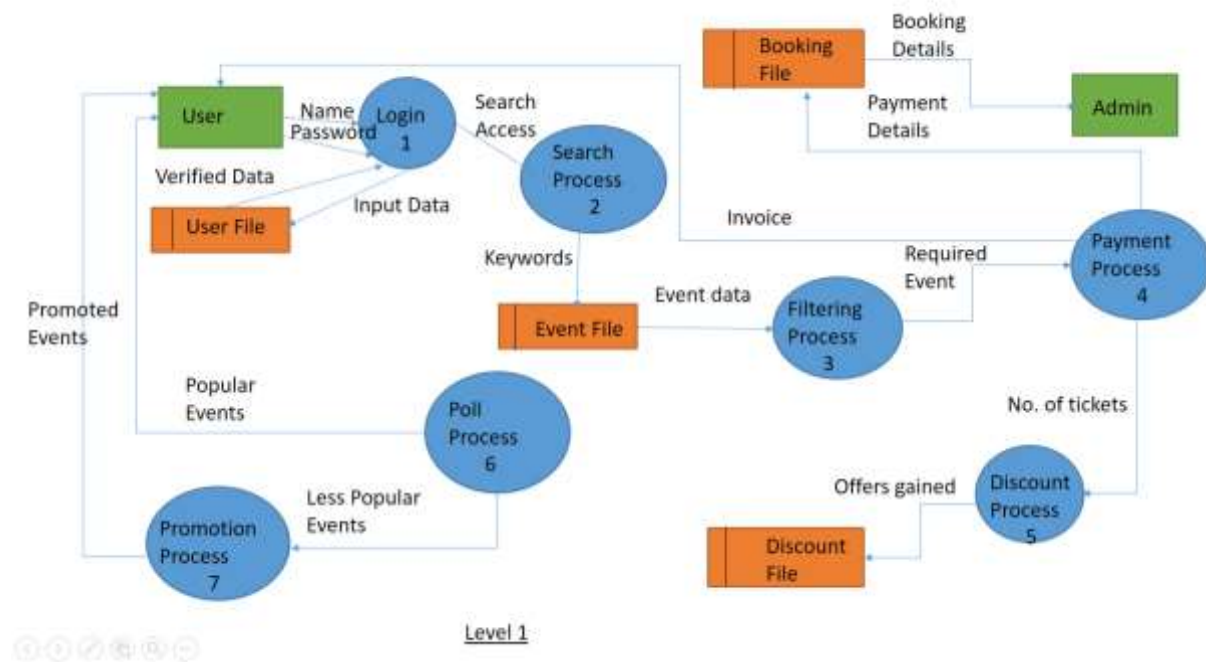
Level 1

Level 2

Level 2
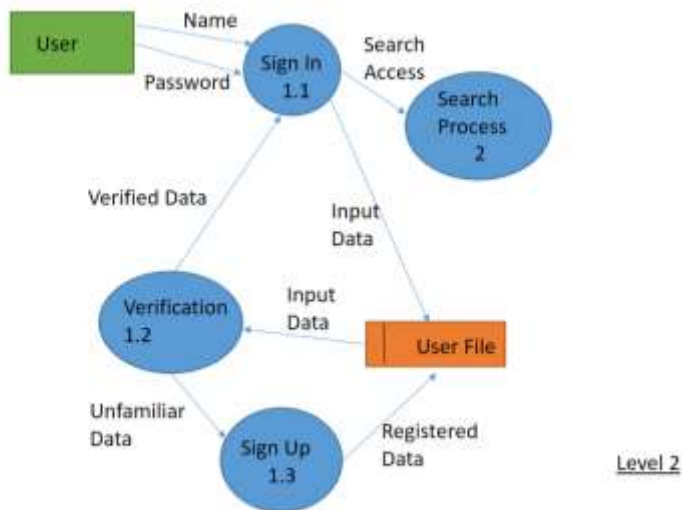
6 Data dictionary

Name = Fullname + Lastname

Address = HouseNo + Street + Town + City + State + Country + PinCode

Ticket Details = TicketNo + EventName + EventLocation

Login details = name + password

User details = Name + phone number + Address + number of bookings + number of tickets + preferred events + preferred time and dates

Search details = location + price + date + number of people

Event details = event name + location + number of tickets + timing + duration

Payment details = mode of payment + date + price + number of tickets

Add event details = event name + price + number of tickets + durations

2. <u>Estimation</u>

2.1 Function Point

fi	Standard fi questions	Points to each questions
1.	Q1. Does the system require reliable backup and recovery?	5
2.	Q2. Are the data communication required?	5
3.	Q3. Are the distributed processing function?	2
4.	Q4. Is performance critical?	1
5.	Q5. Will the system run in a heavily utilized operational environment?	3
6.	Q6. Does the system require on-line data entry?	5
7.	Q7. Does the on-line data entry require the input transaction to be built over multiple screens or operation?	5
8.	Q8. Are the ILF's updated online?	5
9.	Q9. Are the inputs,output files or inquires complex?	2
10.	Q10. Is the internal processing complex?	2
11.	Q11. Is the code designed to be reusable?	3
12.	Q12. Are conversion and installation included in design?	2
13.	Q13. Is the system designed for multiple installations in different organizations?	5
14.	Q14. Is the application designed to facilitate change and ease of use by the user?	5

* We assume all the cases to be average type

Function Point	No of count	Type	Simple	Average	Complex	Final points
External input	14	4	3	4	6	56
External output	5	5	4	5	7	25
External Inquiries	8	4	3	4	6	32
Internal logical files	4	10	7	10	15	40
External interface files	0	7	5	7	10	0
TOTAL UFP						153

FUNCTION POINT = UFP*CAF

Where UFP = Unadjustied function point

And   CAF = Complexity adjustment factor

So,

CAF = $0.65 + 0.01 * \Sigma f_i$

$\quad$ = 0.65+0.01*50

$\quad$ =1.15

Function point = 153*1.15

$\qquad$ =175.95

2.2 Efforts

Assume that the productivity of the project is 6 function-point per month.

Assume burdened labour cost to be Rs 15,000 and cost per function point to be Rs 1100.

Total Efforts = Function point(Calculated)/Average Productivity

=175.95/6

=29.32

Estimated project cost = 1100*29.32 = Rs 32,252

3.   Scheduling

Work Tasks	Week1	Week2	Week3	Week4	Week5
1. Theme of project					
Identify needs and benefits	▬				
Identify project constraints	▬				
Milestone: Project statement defined	◆				
2. Specify product requirements					
Product perspective		▬			
Product functions		▬			
User characteristics		▬			
Milestone: Product requirement specified		◆			
3. Research availability of existing software					
Research front-end development			▬		
Research back-end development			▬		
Milestone: Reusable components identified			◆		
4. Define technical feasibility					
Evaluate navigation			▬		
Evaluate payment process			▬		
Milestone: Technical feasibility assessed			◆		
5. Identification of risks involved					
Define risks in payment process				▬	
Define risks in booking events				▬	
Milestone: Risks Identified				◆	
6. Make estimate of size				▬	
7. Creating testing plans					
Define navigation tests					▬
Milestone: Testing complete					◆
8. Create a scope definition					▬
Milestone: Scope document complete					◆

4. <u>Risk management</u>

1. Large number of users than planned

The number of users that will be estimated can be less but as the product gets more fame, number of users increases.

2. Server breaks down

Due to the break down of server, our customers will not be able to connect to our Website.

3. Data loss

Sometimes, the computer may get crash due to which all our data will be lost and this is a major issue.

4. Security issues

The website may get hacked intentionally by someone and this will lead to huge loss in terms of both money and data.

5. Users resist system

It is possible that users are more adaptive to some other online ticket booking portals and hence, it will reduce our customers. And it is quite difficult to convince people to opt for online ticket booking because there are many people who prefer physical booking as they want the look and feel of the product.

6. Transaction drops

In some instances, booker is being charged for the services but the transaction is dropped at last moment resulting failure in allocation of services like events tickets etc.

<u>**Risk table**</u>

<u>Risks</u>	<u>Probability</u>	<u>Category</u>	<u>Impact</u>
Large number of user then planned	30%	PS	3
Server breaks down	10%	BU	1
Data loss	70%	TI	1
Security issue	10%	TI	1
User resist system	20%	BU	1
Transaction drops	10%	TI	1

PS = Product Size
TI = Technical issue
BU = Business Impact
ST = Staff Size
CU = Customer characteristics

Impact values

1. CATASTROPHIC
2. CRITICAL
3. MARGINAL
4. NEGLIGIBLE

RISK MITIGATION, MONITORING AND MANAGEMENT

Mitigation
The cost associated with a computer crash resulting in a loss of data is crucial. A computer crash itself is not crucial, but rather the loss of data. A loss of data will result in not being able to deliver the product to the customer. As a result, the organisation is taking steps to make multiple backup copies of the software in development and all documentation associated with it, in multiple locations.

Monitoring
When working on the product or documentation, we should always be aware of the stability of the computing environment they are working in. Any changes in the stability of the environment should be recognized and taken seriously.

Management
The lack of stable-computing environment is extremely hazardous to a software development team. In the event that the computing environment is found unstable, the development team should cease the work on that system until the environment is made stable again, or should move to a system that is stable to use and continue working there.

5. <u>Design</u>

<u>5.1 System Design</u>
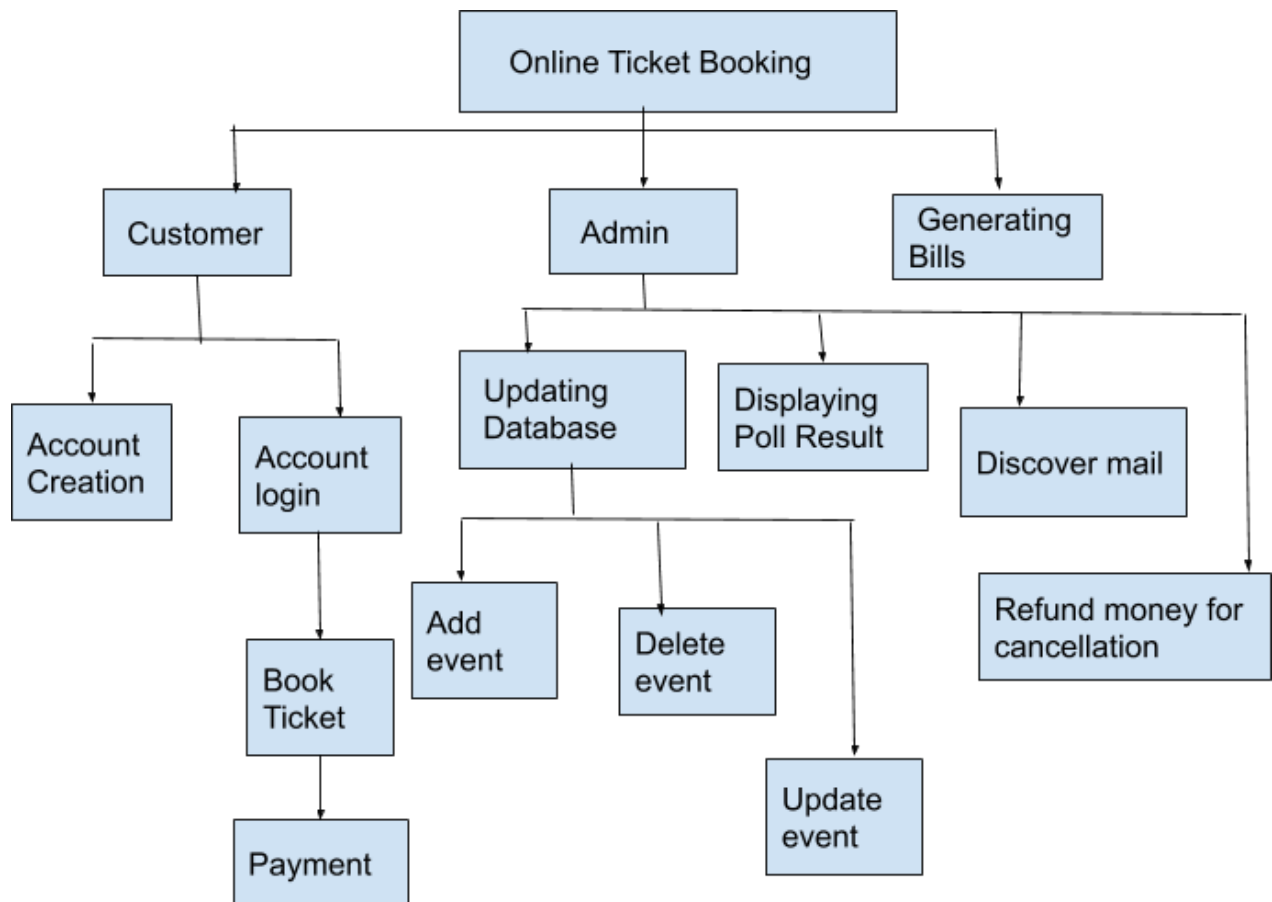
5.2 Data Design

User Database

Attributes	Data type	Constraint
User-id	Varchar2	Primary key
Name	Varchar2	Not null
Phone-no	Numerica	Not null
Email-id	Varchar2	Not null
Address	Varchar2	Not null

User-id	Name	Phone-no	Email-id	Address

Event Database

Attributes	Data-type	constraint
Event-id	Varchar2	Primary key
Ename	Varchar2	Not null
Edate	Date	Not null
Duration	Time	Not null
Tickets available	Int	Not null
Ticket sold	Int	Not null

Event-id	Event name	Edate	Eduration	Tickets available	Tickets sold

Booked_ticket Database

Attributes	Data type	Constraint
Booked-id	Varchar2	Primary key

Ename	Varchar2	Not null
User-id	Varchar2	Foreign key(References user-id of user database)

Booked-id	Ename	User-id

Discount Database

Attributes	Data type	Constraint
User-id	Varchar2	Foreign key(References user-id of user database)
Event-id	Varchar2	Foreign key(References Event-id of event database)
Before price	Decimal	Not null
Discount	Percentage	Not null
After price	Decimal	Not null

User-id	Event-id	Before price	Discount	After price

## 6. **CODING**

```
{
Choose customer or organizer (0/1) login

if(chosen==customer)
{
        cout<<"enter email";
        If (email syntax is incorrect)
        {
                cout<<"Please enter correct email";
                Break;
        }
        else
        {
                cout<<"enter password";
                Search the entered email in database
                if(username does not exist)
                {
                        cout<<"Check username or Register";
                }
                elseif (username exists but password does not match)
                {
                        cout<<"Check username and password";
                }
                else if (username and password match)
                {
                        goto(event selection screen);
                }
                else
                {
                        Break;
                }
        }
}


If (chosen=organizer)
{
        cout<<"enter email";
        If (email syntax is incorrect)
        {
                cout<<"please enter correct email";
                break;
        }
        Else
        {
                cout<<"enter password"
```

```
Search the entered email in database
If (username does not exist)
{
        cout<<"Check username or Register";
}
else if (username exists but password does not match)
{
        cout<<"check username and password";
}
else if (username and password match)
{
        goto(event selection screen);
}
else
{
        break;
}
}
```

7. **Testing**
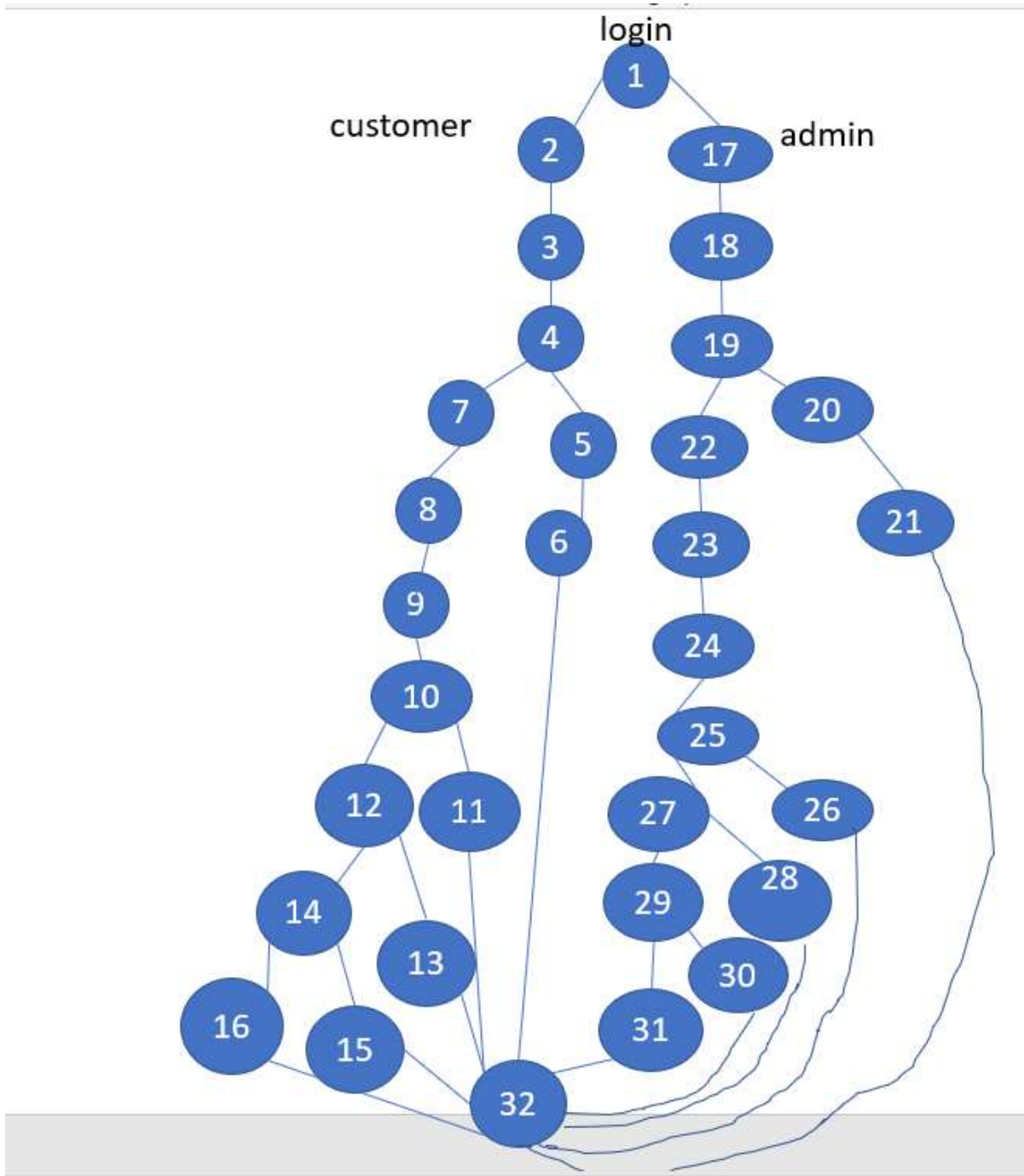
Regions = 10
Number of nodes = 32
Number of edges = 40

Independent paths

Path 1: 1->2->3->4->7->8->9->10->11->32

Path 2: 1->2->3->4->7->8->9->10->12->14->16->32

Path 3: 1->2->3->4->7->8->9->10->12->13->32

Path 4: 1->2->3->4->7->8->9->10->12->14->15->32

Path 5: 1->2->3->4->5->6->32

Path 6: 1->17->18->19->22->23->24->25->26->32

Path 7: 1->17->18->19->22->23->24->25->27->28->32

Path 8: 1->17->18->19->22->23->24->25->27->29->30->32

Path 9: 1->17->18->19->22->23->24->25->27->29->31->32

Path 10:1->17->18->19->20->21->32

Cyclomatic complexity

1. Number of regions = 10
2. V(G) = number of edges - number of nodes + 2
   = 40 - 32 + 2 = 10
3) V(G) = number of predicate nodes + 1
   = 9 + 1 = 10

Graph Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1		a															b															
2			c																													
3				d																												
4					e		f																									
5						g																										
6																																h
7								i																								
8									j																							
9										k																						
10											l	m																				
11																																n
12													o	p																		
13																																q
14															r	S																
15																																t
16																																u
17																		v														
18																			w													
19																				x		y										
20																					z											
21																																A1
22																							A2									
23																								A3								
24																									A4							
25																										A5	A6					
26																																A7

27																												A8	A9			
28																																A10
29																												A11	A12			
30																																A13
31																																A14

8 References

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- Internet