Gymnasium Management System

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Abstract- *As we know computerization can be helpful as means of saving time and money, we designed a system by using SQL for database backend and NetBeans for frontend which will provide a better graphical user interface. The gymnasium Management system can handle all the required and minute details simply and correct info security consequently to the user. They require software, which will store data about members, employees, machines, salary, diet of members etc. and lock-up with graphical user interface(GUI). The system will Check validity of information provided by user, Stores information of members according to their id, and Generate reports for different id. The projected system is very secured, as a result of for login the system it needs the username and watchword that is completely different for every department thus providing each department a special read of the member data.It additionally provides wide selection of sure criteria in every window the shopper is functioning for higher and faster answer. It maintains report for all criteria. Manages member data individually for all exercise and worker data individually for considering the wants of gymnasium, stores data regarding regular machines. This system can run on any windows operating system.*

Keywords- Exercise prescription, fitness, gym, members' welfare, security.

I. INTRODUCTION

The current system is time consuming and also it is very costly, because it involves a lot r were many limitations in this system. The system is not efficient. Also there is a burden of paperwork as all things are kept in a single register. Due to this, the time for recording details of each and every member and employee is large. The report generation is not so easy.The most drawback of the project is to style and develop a user friendly system that is simple to use and economical computerised system. The matter must develop associate correct and versatile system which will eliminate knowledge redundancy, additionally to produce higher graphical computer programme. rThe solution should also take care of the security of the database data by using login & password.

The purpose or objective of this system is to digitalize and create an automated system. The system will perform the task like adding the new member to the gym, Removing the member or keeping the payments records and other stuff required in managing the gym properly. The present scenario in the gyms is that the records are kept by writing in a file on the paper. Every management task is done manually. TThis creates a system unreliable and confusing to stay the right track of the records. the upkeep of the system like this can be hardly needed till it must amendment any a part of the system.

The information about the various things contained in the system are like members, trainers, equipment can get by just a few clicks unlike the paper documents required the serious reading for such information. It helps in creating the various batch according to their preference or if they want a particular trainer. It made easy to generate the reports of various operations performed in the gym are like paying the fee it can be stored and later evaluated and get the list of members who did not pay the fee. It also helps the users in reducing the carbon footprint as the amount of paper used in company reduces. This also helps in keeping the standard width of the management system as if there is a case where the administration involves more than one person to manage the gym.

The system does not only limit itself to the administration and but also helps the members of the gym. The members can have options like attendance and fee payment change batch request etc. This will improve the transparency between the members which is always a good quality in the system. It will also give the layer of rsecurity to the administration and the users that only authorized users can access by their credentials. In Introduction you can mention the introduction about your research.

II. BACKGROUND

It is always necessary to study and recognize the problems of existing system, which will help in finding out the requirements for the new system. System study helps to find completely different alternatives for higher answer. It includes:

1.) Data gathering
2.) Study of existing system
3.) Analysing problem

4.) Studying various documents
5.) Feasibility study for further improvements.

Following are the steps taken during the initial study:

At the start, we tend to collected all the data that they wished to store. Then we studied the operating of the present system that is finished manually. We noted the limitation of that system that motivated them to own new system. With the assistance of those documents we have a tendency to get basic concepts regarding the systems well as input output of the developed system.

III. EXISTING SYSTEM

In gym management system, if we take the current system and compare with the proposed it is far behind. Every work in the existing is manual and done on the paper. There might be a computer used somewhere for the work but it's is not doing exactly it's is supposed which is reducing the manual work. Entering everything manual to the computer by creating a file is not exactly we are talking in computerization.

The existing system requires a lot of manual work which results in taking more time than it should. The operations like updating and synchronizing data are also done manually in the existing system that is not automated and again time-consuming process. These practices are not at all reliable as the one wrong entry can take a lot of time in detection and then there is a correction. Humans are prone to errors and can mistakes often unless it has some inbuilt programs which can take check the input and save from error.

We introduced the system to scale back the manual work effectively as there's the backend of the system which can watch out of synchronizing and change of the information for the system. So, if there's any amendment within the system knowledge it'll seem to all or any different users of the system. So, if there is any change in the system data it will appear to all other users of the system. As the system wasn't on-line the member cannot see their timeline that the event generated by them in past like fee payment, attendance, batch temporal arrangement and trainer profile etc. Keeping an automated system is also helps in managing the member's information secure and safe. As it can only be seen by the administrator with the correct credentials which is not an option in the existing system. Unless the records are kept in a physically safe location such as a locker.

DRAWBACKS

Some major drawbacks of the existing system:

1. Required a lot of paperwork and the process takes time.
2. Everything is done on the paper and these are highly prone to damages and requires a good amount of security and space to store.
3. Required Buying of goods more frequent as compared to online system e.g.: paper, pen.
4. Likely to have an error.
5. Lack of storage space for the handwritten documents.
6. Require more physical work and manpower

Information is not available globally to both clients and employees hence location restriction

IV. PROPOSED SYSTEM

In gym management system, after the planning and analysis phase of the system gets completed. Then the next phase required to transform the collected required system information into structural blueprint which will serve as a reference while constructing the working system.

It is a phase when most of the risks and error unveiled so it's is good practices to take care of this thing from the start.

This will be a completely fledged system which can be the backbone of the whereas management of the gymnasium therefore ignoring the chance or error isn't associate possibility as later it can create a larger style of itself. rrSo, it is better to minimize the problems faced by both staff and the manager in the Organization.

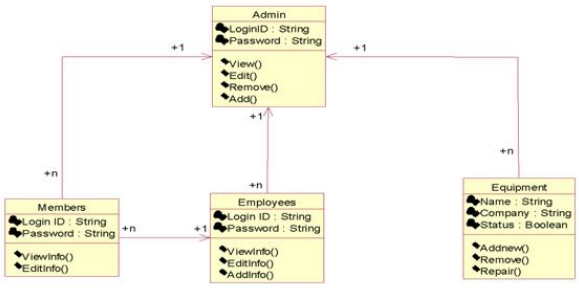
The main goal of this project is to save paperwork done by the gymnasium thereby making the data handling easier and more secure. The project is a simple and yet intelligent implementation of the same paperwork in digital format.The Graphical user interface is purely JAVA based while data handling is done using SQL PLUS. It handles minute details ranging from workout performance of members to their diet plan, etc.

ADVANTAGES

1. The projected system is very secured, as a result of for login the system it needs the username and watchword that is completely different for every department thus providing each department a special read of the member data.
2. It provides wide selection of sure criteria in every window the shopper is functioning for higher and faster answer.

3. Manages member data individually for all exercise and worker data individually for considering the wants of gymnasium.
4. Stores data regarding regular machines.
5. This technique will run on any windows software package.

The projected system is very secured, as a result of for login the system it needs the username and watchword that is completely different for every department thus providing each department a special read of the member data. It provides wide selection of sure criteria in every window the shopper is functioning for higher and faster answer. The system manages member data individually for all exercise. It maintains reports for all criteria's.



V. CONSTRAINTS AND TRADEOFFS

SYSTEM REQUIREMENTS

1) SOFTWARE REQUIREMENTS

- Operating System :Windows 7/8/10
- Software Programming Packager :NetBeans IDE, Oracle 11g, SQLPLUS.

2) HARDWARE REQUIREMENTS

- Processor Type : Pentium -IV
- Speed : 2.4 GHZ
- Ram : 128 MB RAM
- Hard disk : 20 GB HD

FUNCTIONAL REQUIREMENTS

1) End-users

- Viewing personal details
- Viewing diet details
- Authentication by login
- Viewing machine details
- User can change personal details any time
- Can interact with trainers
- Keep track of history
- Unique Identification 7
- Reduce burden/paperwork

2) System Owners

- Can view his/her details
- Can have record of all employees
- Can add new employee/member
- Can delete employee/member
- Can have machine details
- Secure login
- Reduce burden/paperwork
- Can give permissions

3) System managers

- Can view members detail
- Can have previous log
- Can view and change diet details
- Secure login
- Reduce burden/paperwork
- Can interact with members
- User friendly interface

4) External stakeholders

- Increase awareness about fitness
- Motivate to exercise
- More advertisement of shareholders
- Help to make a fit country
- Provide regular oversight
- Get trends of customers

NON – FUNCTIONAL REQQUUIREMENTS

1) Efficiency

Since the application is connected to Oracle server so all the data is in cloud storage, hence we need not take care of it. Also user friendly interface saves too much time.

2) Reliability

The application is reliable in terms of privacy(no other employee/member can access others' profile) services and accessibility.

3) Portability

The application can run on any system having Windows OS. So you can use it wherever you want.

4) Usability

The application is user-friendly and no prior knowledge is required to access it. Application is simple and easy to use.

5) Economic

While considering economic feasibility, it is checked in points like performance, information and outputs from the system. NetBeans is available in one package of the windows operating system & does not require additional software cost for the client tools. The cost incurred to develop the system is freeware and does not incur the cost to the project. Backend database technology is a freeware. This justifies economic feasibility of the system.

6) Environmental

All that translates into a supremely smaller need for paper and the massive space to store ever- increasing boxes of project documents, because everything is digitally. Significant reductions in paper and storage space can substantially reduce costs and eco-friendly.

7) Social

Although generally there is always resistance, initially to any change in the system is aimed at relieving the workload of the users to extent the system is going to facilitate user to perform operations. Thus there is no reason to make system socially unfeasible.

8) Political

Many shops charge extra for repairing of products and include unreasonable charges. All these politics would be avoided as reasonable prices would be there for the services.

9) Health and safety

We can use the product on any system. As it is simply a software so there is no harm in using it. It is all healthy and safe.

10) Sustainability

The sustainability is obtained by consulting the system users. Check that proposed solution satisfies the user needs or not. There is no resistance from employee since new system is helpful. The prevailing system is manual system, whereas the new system is computerized and intensely user friendly.

VI. IMPLEMENTATION

The gymnasium Management system can handle all the required and minute details simply and correct info security consequently to the user.They need computer code, which can store knowledge regarding members, employees, machines, salary, diets of members etc. and lock-up with graphical computer programme (GUI). It will contain 3 modules with login function for each-

Member Login-The essential entity for the system is a member. It will store all the information about the member from personal to the gym related information. It will also store the user status through which admin can directly find out if the member is allowed like if they have paid their fee. Admin can also update member's gym information and the member can view by login in with their credentials.

This entity has the following attribute:

Member_id

It's a primary key for this entity.This will also act as the username while logging into their account in the system. This member id will be generated automatically and assigned to the member at the time of registration.This will help in uniquely identifying the members.

Password

It will be used secure key while logging into the account with a username and this password.

Member_name

Attribute store name of the member used for identification purpose from a government authorized id cards.

Member_contact

The contact number of the member for any kind of communication with a member or maybe some announcement.

Member_address

This stores the address of the member for any emergency or if there is any newsletter from the gym has subscribed by the member.

Body_id

This attribute will store the unique id from the type of the body a person has which will help in defining the fitness of the person.

Batch_id

This can be used as a facility for the gym members they can choose their timing of the gym from the available slots in the entity Batch.

Summarising, this attribute contains the personal details and health details of each member and the contact details of the employee assigned to him/her.They can log in through the home screen then there will be options to see the reports about members, trainers, payments etc. After logging in members and admins have different options like admin have privileges to access anyone's information where members are limited to their relation.

Employee/Trainer login- This entity stores the information about the trainer which is hired by the gym administration to train their member work out correctly. Working out correctly is same as important as actually working out.This trainer could be hired on basis of hourly charges or special training for the member or they could be on an agreement like a permanent employee of the gym.

This entity has the following attributes:

Trainer_id

This is unique identification number given to each trainer which can also be said that employee id in any other organization. This is the primary key for the entity.

Trainer_name

This attribute stores name of the person for usual identification.

Trainer_exp

It stores that how much experience trainer holds in such training. When there is a need for special training or something then experience count.

Trainer_contact

It stores the contact number of the trainer for any immediate communication required.

Batch_id

It stores unique batch id. It specifies which trainer will be available at the gym

This entity has a direct relationship with Administration as they hired trainer as required in the gym and another relationship is a batch entity which will decide the available time in the gym.

Collectively, this module contains the diet details of members which are assigned to that employee. He/she can also change the diet of the member.

Admin login-The admin is the owner of the gym and will manage the trainer as well as the members of the gym. To secure the system from anonymous person login system is designed. So, the admin will have their own username and the password.

This entity will also record the login time and logout time of the user from the system. Maintaining the record of the time will provide a secure surveillance over the admin events also.The administrator also has relationships with every entity as it needs to track every performance of the system.It has following attributes

Username

It stores the username of the admin which acts as a unique name. Through this login into the system and the work they made will be recorded against his name. It will help in finding if there is any unauthorized work been done.

Password

This attribute holds the secured keyword need the access of the system. This should not be shared with any other member. As it would make any staff employee enter the system and see the information regarding client which can make them unbiased.

Event

This attribute record if there is any change has been made by the admin. For e.g. if the admin login then the event will be generate named logged in same for logout or update any information.

Date timestamp

This attribute is created for the safety and security of the information. With every event generated it will also save the date and time of event generation.This entity handles the member and the trainer of the gym. The administration has the authorization to look at all the payment done by the member. Where the member can see the payment done by them only.

In other words, they can log in through the home screen then there will be options to see the reports about members, trainers, payments etc. After logging in members and admins have different options like admin have privileges to access anyone's information where members are limited to their relation.

VII. RESULTS AND DISCUSSION

The following modules discussed above are implemented. We get the following results:-

- Increased efficiency with reduced cost.
- Reduce the burden of paper work.
- Better time management by recording the details of each and every member and employee.
- Generate required reports easily.
- Introduce a Graphical User Interface. (GUI)
- Reducethe chances of data theft.
- Provide security to data by means of authentication.

The following samples are shown below:-

Member Login

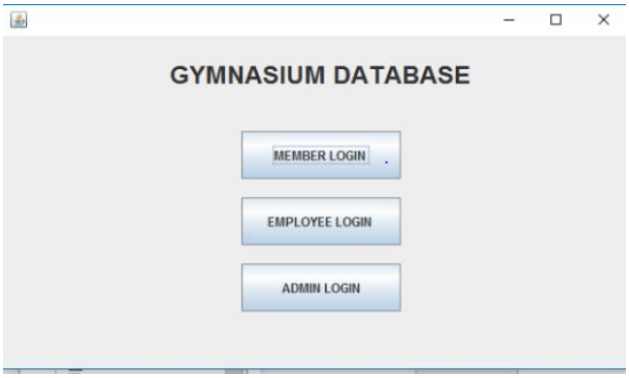
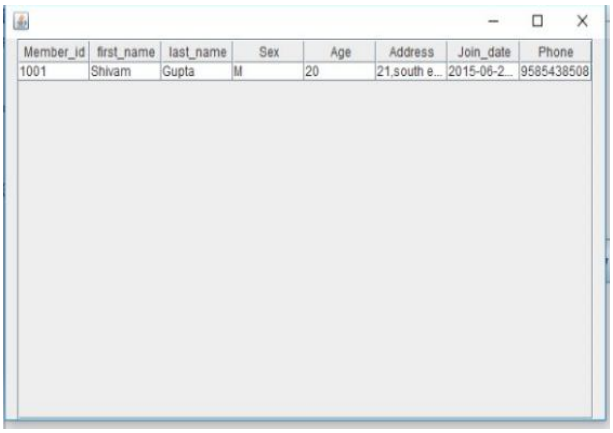


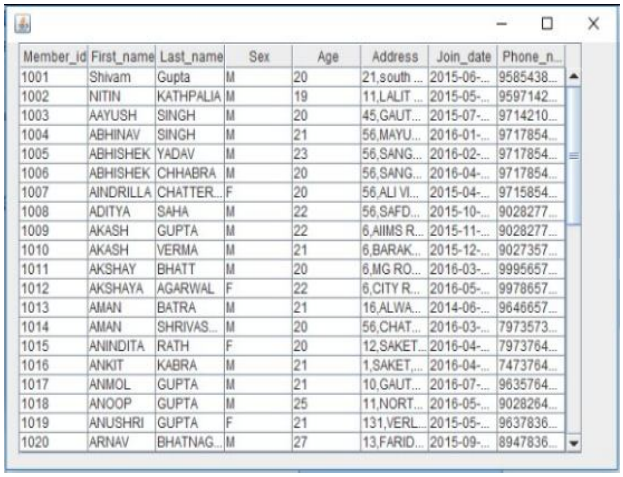
Figure 2 – Gymnasium Database

Figure 3 – Member Login Page



Member_id	first_name	last_name	Sex	Age	Address	Join_date	Phone
1001	Shivam	Gupta	M	20	21,south e...	2015-06-2...	9585438508

Figure 4 – Single Member Details



Member_id	First_name	Last_name	Sex	Age	Address	Join_date	Phone_n...
1001	Shivam	Gupta	M	20	21,south ...	2015-06-...	9585438...
1002	NITIN	KATHPALIA	M	19	11,LALIT ...	2015-05-...	9597142...
1003	AAYUSH	SINGH	M	20	45,GAUT...	2015-07-...	9714210...
1004	ABHINAV	SINGH	M	21	56,MAYU...	2016-01-...	9717854...
1005	ABHISHEK	YADAV	M	23	56,SANG...	2016-02-...	9717854...
1006	ABHISHEK	CHHABRA	M	20	56,SANG...	2016-04-...	9717854...
1007	AINDRILLA	CHATTER...	F	20	56,ALI VI...	2015-04-...	9715854...
1008	ADITYA	SAHA	M	22	56,SAFD...	2015-10-...	9028277...
1009	AKASH	GUPTA	M	22	6,AIIMS R...	2015-11-...	9028277...
1010	AKASH	VERMA	M	21	6,BARAK...	2015-12-...	9027357...
1011	AKSHAY	BHATT	M	20	6,MG RO...	2016-03-...	9995657...
1012	AKSHAYA	AGARWAL	F	22	6,CITY R...	2016-05-...	9978657...
1013	AMAN	BATRA	M	21	16,ALWA...	2014-06-...	9646657...
1014	AMAN	SHRIVAS...	M	20	56,CHAT...	2016-03-...	7973573...
1015	ANINDITA	RATH	F	20	12,SAKET...	2016-04-...	7973764...
1016	ANKIT	KABRA	M	21	1,SAKET,...	2016-04-...	7473764...
1017	ANMOL	GUPTA	M	21	10,GAUT...	2016-07-...	9635764...
1018	ANOOP	GUPTA	M	25	11,NORT...	2016-05-...	9028264...
1019	ANUSHRI	GUPTA	F	21	131,VERL...	2015-05-...	9637836...
1020	ARNAV	BHATNAG...	M	27	13,FARID...	2015-09-...	8947836...

Figure 5 – Members' Details

Employee Login

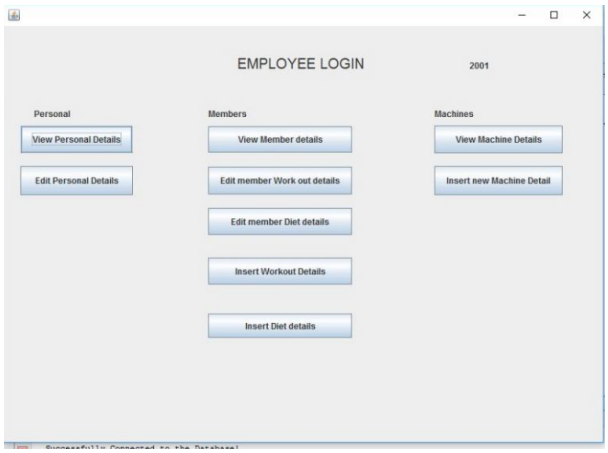


Figure 6 – Employee Login Page

Admin Login

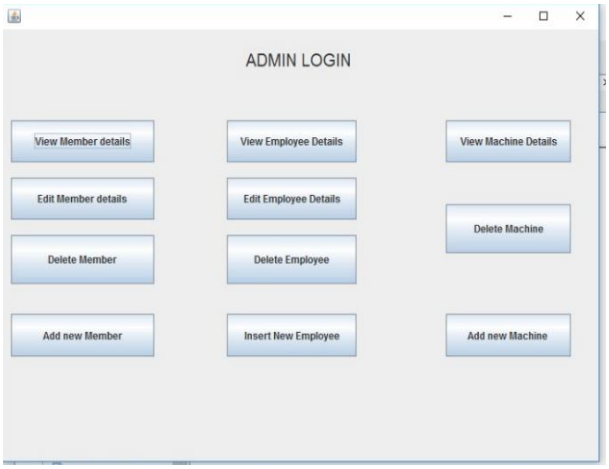
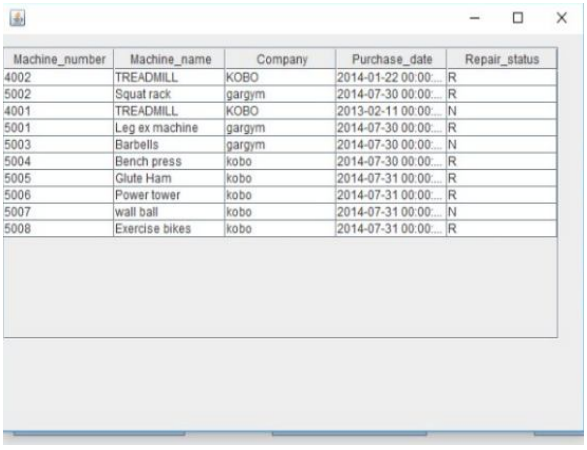


Figure 7 – Admin Login Page



Machine_number	Machine_name	Company	Purchase_date	Repair_status
4002	TREADMILL	KOBO	2014-01-22 00:00:...	R
5002	Squat rack	gargym	2014-07-30 00:00:...	R
4001	TREADMILL	KOBO	2013-02-11 00:00:...	N
5001	Leg ex machine	gargym	2014-07-30 00:00:...	R
5003	Barbells	gargym	2014-07-30 00:00:...	N
5004	Bench press	kobo	2014-07-30 00:00:...	R
5005	Glute Ham	kobo	2014-07-31 00:00:...	R
5006	Power tower	kobo	2014-07-31 00:00:...	R
5007	wall ball	kobo	2014-07-31 00:00:...	N
5008	Exercise bikes	kobo	2014-07-31 00:00:...	R

Figure 8 – Equipment Details' Page

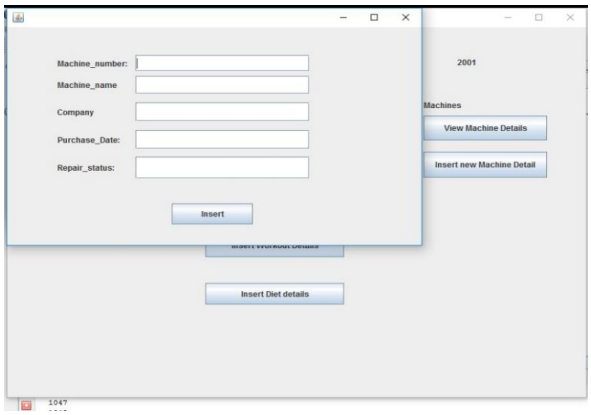


Figure 9 – Equipment Insertion Page

V. CONCLUSION

The gymnasium MANAGEMENT SYSTEM is with success designed and developed to fulfilling the required necessities, as known within the necessities analysis part, like the system is incredibly abundant user friendly, type level validation and field level validation area unit playing terribly expeditiously.

The new computerized system was found to be abundant quicker and reliable and user friendly than the prevailing system, the system has been designed and developed step by step and tested with success. It eliminates the human error that area unit doubtless to sneak in the type of operating during which a bulk amount of information to be processed.

The system results in quick retrieval of information that is very vital for the progress any organization. Cost is minimized in case of stationary. Burden of manual work is reduced as whenever transaction takes place, there is no need to record it in many places manually.

REFERENCES

[1] https://www.researchgate.net/publication/267631563_The_Role_of_Requirement_Engineering_in_Software_Development_Life_Cycle?_esc=publicationCoverPdf&el=1_x_3&enrichId=rgreq-c9c3d9b3c9bf3807d3edf19af61eda32-XXX&enrichSource=Y292ZXJQYWdlOzI2NzYzMTU2MztBUzoxNjk5MjA2ODM4NDc2ODBAMTQxNzUyMzY1NjU1Mw%3D%3D
[2] www.stackoverflow.com
[3] https://www.rroij.com/open-access/requirement-engineering-an-approach-to-quality-software-development-31-33.pdf
[4] www.youtube.com

[5] http://www.ijarcce.com/upload/2014/january/IJARCCE4D_s_manjunath_a_survey.pdf
[6] www.scribd.com
[7] https://www.ripublication.com/irph/ijict_spl/17_ijictv3n7spl.pdf
[8] www.nptel.com
[9] http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.683.9916&rep=rep1&type=pdf
[10] http://www.cscjournals.org/library/manuscriptinfo.php?mc=IJSE-7
[11] www.oracle.com