FEASIBILITY STUDY

< JU Online Exam Registration System>

RUBEL SHEIKH

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
JAHANGIRNAGAR UNIVERSITY

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1. EXECUTIVE SUMMARY

We know that the exam registration system of our University is a long term analog system. This process waste valuable times of any student. This feasibility analysis is prepared for an automated and online exam registration system for Jahangirnagar University. This university is one of the best universities of Bangladesh. Here the students have to register before appearing on the examination. The reason for this exam registration is to determine which and how many student are going to appear in the examination. This registration process is divided into several phases which have to be completed individually. This registration process is manual so far and the students have to be physically present in different offices for completing the registration process. Now the university authority has decided to make the registration system automated and online to reduce the hassle of the students. The first part of this feasibility analysis report provides the objectives of making this report. Later there is a short description of the old system and the necessity of the new online system. Later there is a description of the proposed system. Then the scope of this project has been described. The later part analyzes the feasibility of this project. This report analyzes the financial feasibility, technical feasibility, behavioral feasibility and operational feasibility of this proposed project. At the end of this report there are recommendations and conclusion.

2. DESCRIPTION OF PRODUCTS AND SERVICES

The current registration system is tedious and analog where the students have to be present physically in different offices. Workflow of the current system is given below:

- Students have to collect a registration form from the respective hall office
- The form have to be filled in by hand following the specified instruction in the form.
- Then the form have to be submitted to the department office for the signature of the honorable chairman.
- After the form is signed by the chairman of the department it is to be submitted to the respective hall office.
- All the dues of the residential halls have to be cleared and then the form will be signature by the hall provost.
- Students have to pay the examination fees in the bank and collet the pay slips.
- This pay slip and the registration form have to be brought into the registrar office where the dues will be checked and the form will be signed by an officer.

In the last step this form have to be submitted to the examination control office and the admit cards will be collected from the department

Overview of the proposed system

The proposed system is a web based application that allows students to register online providing the required details. It adopts the online payment feature that was seen in the Jahangirnagar University before.

The system will have an interactive user interface which will be convenient to the users. This user interface will be used to collect information form the students in an interactive manner. Each students will be provided with unique id and password which will have to be submitted to the system before the registration process begins. This is for the authentication of the student. If the student is verified as a valid student then the registration form will appear in the user interface.

The student will have to fill out the form with required information.

The system is interactive and no invalid information will be taken as input. After verifying the information the information will be saved in the database. The chairman of respective department and provost of the respective hall will verify the information state the student as clear to appear in the examination.

When the student is clear to appear in the examination then the payment process comes. Student will not have to go to the bank and rather the payment will be done through some options. The options include DBBL Mobile Banking, Bkash, Mobicash and UCBL Xoom (A paypal service). After all the dues are cleared through these payments the student will be given the admit card in PDF format which have to printed and brought in the examination hall.

3. TECHNOLOGY CONSIDERATIONS

The system is an object-oriented programming system, implemented using the Spring MVC framework which is a JAVA framework that provides a set of tools for the construction of fault-tolerant distributed applications. Objects obtain desired properties such as concurrency control and persistence by inheriting suitable base classes. The system supports the computational model of nested atomic actions (nested atomic transactions) controlling operations on persistent (long-lived) objects. Atomic actions guarantee consistency in the presence of failures and concurrent users, and objects can be replicated on distinct nodes in order to obtain high availability.

Distributed execution in the system is based upon the *client-server* model: using the remote procedure call mechanism (RPC), a client invokes operations on remote objects which are held within server processes. Distribution transparency is achieved through a stub generation tool that provides client and server stub code that hides the distributed nature of the invocation. The client stub object is the proxy of the remote object in the client's address space; it has the same operations as the remote object, each of which is responsible for invoking the corresponding operation on the server stub object, which then calls the actual object.

Based upon the experiences of the manual registration process, it was anticipated that 100 front-end machines would be necessary for the purposes of the registration exercise. These machines (PC-compatible machines and Apple Macintosh systems), would be distributed throughout the University campus. For each of these two types of machine, a user friendly interface program (*front-end*) was written, which would display the equivalent of the original paper registration form. But the number of students is an issue for the 100 machines. For this the system is compatible with smartphone technology and students can also register through their android or iOS smartphones which will reduce the need of disposable front end machines.

It is important that the student information is stored and manipulated in a manner which protects it from machine crashes. Furthermore, this information should be made accessible from anywhere in the campus, and kept consistent despite concurrent accesses. Therefore, a distributed information store (the *registration database*) was built using the facilities provided by the system. The database represents each student record as a separate persistent object (approximately 1024 bytes), the *StudentRecord*, which is responsible for its own concurrency control, state management, and replication. This enables update operations on different student records (StudentRecord objects) to occur concurrently, improving the throughput of the system. Each StudentRecord object was manipulated within the scope of an atomic action, which was begun whenever a front-end system requested access to the student data; this registration action may modify the student record, or simply terminate without modifying the data, depending upon the front-end user's requirements.

At the start of each registration day each front-end system is connected by a TCP connection to one of the five HP710 UNIX systems. One process for each connected front-end is created on the UNIX system; this process is responsible for interpreting the messages from the front-end and translating them into corresponding operations on the registration database. This is the system's *client* process mentioned earlier, and typically existed for the day. In order to balance the load on these systems, each user was asked to connect to a particular client system. If that system was unavailable, then the user was asked to try a particular backup system from among the other machines.

Having described the overall system architecture we shall now examine the operation of the registration system, showing how existing students were registered, new students were added to the system, and the data was examined.

Jahangirnagar University is currently maintains a high speed internet connection, web server, and the latest software. With the addition of an Online exam form system it is expected that there will be an overall cost increase of 5-10% for web server operations and maintenance costs.

4. PRODUCT/SERVICE MARKETPLACE

The online marketplace for chocolates and confections has been thriving for many years. In FY20xx online chocolate sales accounted for approximately $20 million or 20% of total chocolate sales worldwide. While chocolates and confections are available in almost every

store, our primary marketplace consists of specialty chocolates and confections. All of ABC's current major competitors already have an established online presence of at least 3-5 years. The top 3 competitors are currently: Smith's Chocolates, Worldwide Candy, and Chocolate International. A large majority of ABC's customer base are returning customers and referrals from existing customers. By providing a more convenient means of purchasing our products online it is expected that we will retain these customers while conducting an online marketing campaign for new customers as well.

ABC will distribute online purchases via direct shipping from the nearest store location. This will allow ABC to provide timely shipping and eliminate the need for a central warehouse or facility from which to store and ship its products. Such a facility would require a significant capital investment as well as increased operation and maintenance costs. However, based on anticipated growth projections, ABC must ensure that all store locations maintain adequate inventories on hand to satisfy customer demand.

5. MARKETING STRATEGY

Economic analysis is most frequently used for evaluation of theeffectiveness of the system. More commonly knows as cost/benefit analysisthe procedure is to determine the benefit and saving that are expected from asystem and compare them with costs, decisions is made to design andimplement the system.This part of feasibility study gives the top management the economic justification for the new system. This is an important input to themanagement the management, because very often the top management doesnot like to get confounded by the various technicalities that bound to beassociated with a project of this kind. A simple economic analysis that givesthe actual comparison of costs and benefits is much more meaningful in suchcases.In the system, the organization is most satisfied by economic feasibility.Because, if the organization implements this system, it need not require anyadditional hardware resources as well as it will be saving lot of time.

6. ORGANIZATION AND STAFFING

Clients Supports :

- Client and user support for present system is there, as the current procedure used takes more time and effort than proposed system.
- No major training and new skills are required as it is based on DBMS model.
- It will help in the time saving and fast processing and dispersal of user request and application.
- New product will provide all the benefits of present system with better performance such as improved information, better management and collection of the reports.

User Support :

- ❖ User involvement in the building of present system is sought to keep in mind the user specific requirement and needs.
- ❖ User will have control over own information. Important information such as Test result can be generated at the click of a button.

7. FINANCIAL PROJECTIONS

The assumptions for these projections are as follows:

- In store sales projections remain unchanged
- All milestones are performed in accordance with the schedule
- All transactions are closed yearly with no carry-over to subsequent years

Measure	Year 1	Year 2	Year 3	Year 4	Year 5	5 year total
Online Sales Projections	$350,000	$425,000	$500,000	$650,000	$800,000	$2,725,000
Additional Staffing Costs	$160,000	$170,000	$200,000	$235,000	$255,000	$1,020,000
Projected Material, Shipping, Insurance Costs	$42,000	$58,000	$70,000	$78,000	$84,000	$332,000
Additional Web Server and IT Hosting/Maintenance	$22,000	$25,000	$30,000	$35,000	$40,000	$152,000
Training for Sales and Marketing Staff	$75,000	$0	$0	$0	$0	$75,000
Contract for Design, Build, and Implementation of Online Store	$100,000	$0	$0	$0	$0	$100,000
Total Additional Costs for Online Sales	$399,000	$253,000	$300,000	$348,000	$379,000	$1,679,000
Cash Inflow	-$49,000.00	$172,000.00	$200,000.00	$302,000.00	$421,000.00	$1,046,000.00

8. TECHNICAL FEASIBILITY

In technical feasibility, we study all technical issues regarding the proposed system. It is mainly concerned with the specifications of the equipments and the software, which successfully satisfies the end-user's requirement. The technical needs of the system may vary accordingly but include:

- The feasibility to produce outputs in a given time.
- Response time under certain conditions.
- Ability to process a certain volume of the transaction at a particular speed.
- Facility to communicate data.

9. Conclusion

From the start Jahangirnagar University is using the manual examination registration system which is tedious and time consuming. The university authority has decided to make the online and automated which is a great decision. The system will reduce the times consumed and hassle faced by the students as well as the cost of the registration process. With this new project some considerations come along. The considerations are the feasibility of the system in different aspects. The above document has described different aspects of the proposed system and come to the conclusion that the proposed online and automated examination registration system is financially, technically, operationally and behaviorally feasible. This system also lessen the amount of human error which was possible in the manual system.