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**INDEPENDENT UNIVERSITY, BANGLADESH**

**Assignment 02**

**COURSE**: System Analysis and Design

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**SUBMITTED TO:**

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# 1: Information Gathering

Gathering data is a key aspect of developing software that meets its goals. We will not be able to meet the needs of the software's users unless we consider their ideas and viewpoints. For my system, I have picked three relevant information collection methods: **stories, interviews, and questionnaires.**

## 1.1 Stories

Story 1

I was speaking to my friend Rhythm the other day and he mentioned about having to take unsuitable tuitions. I asked how they were unsuitable, and he said that he was having to teach younger kids when he could teach students of higher classes. Also, this meant he was not getting enough money for his time's worth, barely making enough money for the commute alone. He said he has been looking for alternatives, but he is unable to find any options and even when he does, it is not suitable.

Findings from the story

* There is need for a platform for matching the right tutors with right students.
* There is need to make this platform according to the various demands of the students and the tutors
* It is also necessary to make a feature of area wise situation to reduce long commutes

Story 2

My friend Supti spoke to me about her recent experience with a student she had to tutor. Even though they had promised her a salary and the timing was fixed, after the first month everything changed. They were wanting to pay less and they were asking her to come at different times which were not agreed beforehand. So she had to get away from this household.

Findings from the story

* There is a need to ensure the safety of both students and tutors.
* Verify the data provided by students and tutors. In case of misconduct, law enforcement could be informed directly from app.
* There should be warnings for students and tutors to change quoted requirements without valid reasons. Repeated offenders could be punished.

## 1.2 Interviewing

We have decided to meet with some of our stakeholders to have a better understanding about them. We began our interview after explaining our app and how it will function. There was a combination of open-ended and closed-ended questions asked. We learned about their perspectives and insights into the challenge they experienced when shopping for sweets by asking open-ended questions. When it came to arranging the questions, the Pyramid method was adopted.

It is very important to know who our users are and whether they are interested in using TutionKhuji or not. Having an in-depth conversation with some of the users will help to know what they exactly need from TutionKhuji.

**Selected interviewee**: Tutor

1. Are you happy with the current situation for tutors?

2. Do you think the proposed system will help to serve your need properly?

3. How long did it take you previously to find students?

4. If you did find them, were they suitable for you and your requirements?

5. What challenges do you face with the current situation of finding students?

6. Did you encounter any misconduct during the process or while tutoring?

7. Do you think the right students will always be able to find appropriate tutors with the current system?

8. If the proposed system were available today, would you use it?

9. Do they think the new system will be successful and accepted?

10. If you oversaw this system, what would you change?

11. How can we improve the new system?

**Selected interviewee**: Student/Guardians

1. Are you happy with how the current situation is for finding tutors?

2. Do you think the proposed system will help to serve your need properly?

3. How long did it take you previously to find tutors?

4. If you did find them, were they suitable for you and your requirements?

5. What challenges do you face with the current situation of finding tutor?

6. Did you encounter any misconduct during the process or while studying with tutor/s?

7. Do you think the right students will always be able to find appropriate tutors with the current system?

8. If the proposed system were available today, would you use it?

9. Do they think the new system will be successful and accepted?

10. If you oversaw this system, what would you change?

11. How can we improve the new system?

**Selected Interviewee**: Admin /System Developer

1. What are the security issues that will cause problem?

2. How often they need to check system?

3. How long will it take to update the system?

4. Can they work in case of emergency?

## 1.3 Questionnaire

We created an online survey form on Google Forms and invited the people and some of the stakeholders to respond to some questions regarding tuitions. The responses of each person will enable us to examine swiftly and simply what the people want. We were also able to gather specific information regarding their issues thanks to the survey.

**Selected stakeholder:** Tutors

(Personal Information)

Read the following questions and answer them appropriately:

1. Name

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Select your gender:

* Male
* Female
* Other

3. Age

* Under 18
* 18 to 24
* 25 to 34
* 35 to 44
* 45 to 54
* Over 55
* Prefer not to answer

4. Do you think tutoring is a good source of income in our country?

* Yes
* No
* Maybe

5. Are you happy with the current situation for tutors?

* Yes
* No
* Unsure

6. How long does it take for someone to find tuitions as a tutor?

* 0-1 month
* 2-6 months
* 7-12 months
* More than 12 months

7. What is the average salary you earn from tuitions?

* 1000-5000 Taka
* 5000-10000 Taka
* 10000-20000 Taka
* More than 20000 Taka

8. Are you satisfied with this amount?

* Yes
* No

9. Is the situation always safe for tutors?

Never Rare Sometimes Mostly Always

10. Do you feel the necessity of an automated system for finding students?

Never Rarely Sometimes Often Always

11. How much help this automated system will do you?

Not at all little a little much helpful very helpful

11. How much help do you think this automated application will do to the general people?

Not at all little a little much helpful very helpful

12. Will you feel comfortable running a mobile application?

Not at all little a little much comfortable very comfortable

**Selected stakeholder:** Students/Guardians

(Personal Information)

Read the following questions and answer them appropriately:

1. Name

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Select your gender:

* Male
* Female
* Other

3. Age

* Under 18
* 18 to 24
* 25 to 34
* 35 to 44
* 45 to 54
* Over 55
* Prefer not to answer

4. Do you private tutors is a necessity for success in the context of the current situation?

* Yes
* No
* Maybe

5. Are you happy with the current situation for students/guardians?

* Yes
* No
* Maybe

6. How long does it take for someone to find tuitions as students?

* 0-1 month
* 2-6 months
* 7-12 months
* More than 12 months

7. Is the situation always safe for students?

Never Rare Sometimes Mostly Always

8. Do you feel the necessity of an automated system for finding tutors?

Never Rarely Sometimes Often Always

9. How much help this automated system will do you?

Not at all little a little much helpful very helpful

10. How much help do you think this automated application will do to the general people?

Not at all little a little much helpful very helpful

11. Will you feel comfortable running a mobile application?

Not at all little a little much comfortable very comfortable

I conducted the above survey and received a mixed bag of positive and negative results:

The positive responses show that they are eager to embrace the new system, while the negative responses indicate that they believe the existing system is inefficient and time-consuming. Furthermore, both the students and the tutors responded positively. People in general expect a hassle-free experience when finding tutors and students with a single click, and new opportunities will pop up as a result.

Users who gave a negative response were satisfied with the traditional/current system. They didn't want to learn a new system.

# 2: Use Case Diagram

Diagram

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# 3: Normal Scenario for 2 Use Cases

## 3.1 Scenario 1

|  |  |
| --- | --- |
| Use Case Name: Register | Unique ID: SA-00001 |
| Actor(s): Student, Tutor. | |
| Stakeholders: Student, Tutor. | |
| Description: User registers in the app as Student or Tutor. | |
| Triggering Event: User registers in the app and inputs information. | |
| Trigger type: External | |
| Steps Performed: | Information Required for Steps: |
| 1. The registration interface loads. |  |
| 2. Selects user type. | User wants to register as Student or Tutor. |
| 3. User enters the following information:      Email, User type, username, mobile      Number, address, password etc. | Personal information of user like User type, username, Mobile Number, password, email, password. |
| 4. Clicks the submit button. | All required information must be filled up. |
| 5. If all information is correct then user will be registered to the system. |  |
| 1. A unique id will be given to the user and a confirmation message will be shown to the user interface. | Unique id and a confirmation message |
| Pre-condition: User needs to have idea about the features of the app. | |
| Post-condition: User must carefully input all required information while registering. | |
| Assumption: User wants to use the app. | |

## 3.2 Scenario 2

|  |  |
| --- | --- |
| Use Case Name:  Request tutors | Unique ID: SA-00002 |
| Actor(s): Student. | |
| Stakeholders: Student, Tutor, Admin | |
| Description: Order sweets from a sweet shop. | |
| Triggering Event: After ordering the customer will be able to get sweets from his desired location. | |
| Trigger type: External | |
| Steps Performed: | Information Required for Steps: |
| 1. User logs in to the system. |  |
| 2. Clicks the Request Tutor button. | User must be registered in the app. |
| 3. Fills up required information on the page like subjects and possible salary. | Subjects, salary |
| 4. Clicks request button. | All required information fields must be filled up properly. |
| 5. A list of available tutors appears. | Tutors matching user’s preferences will have to be stored in the app database. |
| 6. Choose a tutor from the list. | Chosen tutor |
| 1. Name of the tutor and rating will be shown for confirming. | Name of the tutor and rating |
| 1. Contact information of tutor is provided | Contact details like number and email |
| 8. If contact is done, a confirmation message will be shown. Else will show an error message | Confirmation message, error message |
| Pre-condition: User needs to be registered to the app. | |
| Post-Condition: User has successfully requested a tutor from the app. | |
| Assumptions: User wants to find tutors through the app. | |

# 4: Alternative Scenario for 2 Use Cases

## 4.1 Scenario 1

|  |  |
| --- | --- |
| Use Case Name: Register | Unique ID: SA-00001 |
| Actor(s): Student, Tutor. | |
| Stakeholders Student, Tutor. | |
| Description: User registers in the app as Student or Tutor. | |
| Triggering Event: User registers in the app and inputs information. | |
| Trigger type: External | |
| Steps Performed: | Information Required for Steps: |
| 1. The registration interface loads. |  |
| 2. Selects user type. | User wants to register as Student or Tutor. |
| 3. User enters the following information:      Email, User type, username, mobile      Number, address, password etc. | Personal information of user like User type, username, Mobile Number, password, email. |
| 4. Clicks the submit button. | All required information must be filled up. |
| 5. If any information is not correct then an error message will be shown that information is not valid and which information is invalid is also shown. Then prompted to enter valid information. | Error message, invalid information |
| 6. The user will enter correct information and continue with the registration. | Correct information |
| 7. A unique id will be given to the user and a confirmation message will be shown to the user interface. | Unique id and a confirmation message |
| Pre-condition: User needs to have idea about the features of the app. | |
| Post-condition: User must carefully input all required information while registering. | |
| Assumption: User wants to use the app. | |

## 4.2 Scenario 2

|  |  |
| --- | --- |
| Use Case Name:  Request tutors | Unique ID: SA-00002 |
| Actor(s): Student. | |
| Stakeholders: Student, Tutor, Admin | |
| Description: Order sweets from a sweet shop. | |
| Triggering Event: After ordering the customer will be able to get sweets from his desired location. | |
| Trigger type: External | |
| Steps Performed: | Information Required for Steps: |
| 1. User logs in to the system. |  |
| 2. Clicks the Request Tutor button. | User must be registered in the app. |
| 3. Fills up required information on the page like subjects and possible salary. | Subjects, salary |
| 4. Clicks request button. | All required information fields must be filled up properly. |
| 5. A list of available tutors appears. | Tutors matching user’s preferences will have to be stored in the app database. |
| 6. Choose a tutor from the list. | Chosen tutor |
| 7. Name of the tutor and rating will be shown for confirming. | Name of the tutor and rating |
| 1. Contact information of tutor is provided | Contact details like number and email |
| 1. “Urgent Need” option will be there too, User must click it for urgent need (start tutoring same day or at most next day). In case of urgent delivery user must pay Tk. 500 advance through digital payment.   In case tutor is not selected after 1 week of class, this amount will be returned to user. | Agent number, Payable amount, Agent pin |
| 10. If contact is done, a confirmation message will be shown. Else will show an error message | Confirmation message, error message |
| Pre-condition: User needs to be registered to the app. | |
| Post-Condition: User has successfully requested a tutor from the app. | |
| Assumptions: User wants to find tutors through the app. | |

# 5. Functional Requirements

It's critical to under what the functional requirements of a system are for both the development team and the stakeholders. The functional requirements of the system are as follows:

1. Users will be able to use the app on a variety of mobile devices include Windows, Android, IOS and Linux.

2. Users will have the option of registering as a student/guardian or a tutor.

3. The user interfaces for student and tutor will be distinct.

4. The user will be able to specify their preferences to achieve a better result.

5. The user will be able to both input and select the data that is required.

6. The app database will hold all the data.

7. All saved data will be safe and secure and will not be tampered with.

8. For each registered user, a user profile will be created.

9. User will be allowed to edit profile anytime.

10. The information that the user has altered will be automatically updated and saved.

11. Data on the available tutors will be updated frequently.

12. All user data will be encrypted for data security.

13. During registration, users' identities will be verified by email, phone number and NID verification.

14. The user will receive a verification code by email or phone call.

15. The user will be able to reset their password by submitting a request.

16. Users will be able to rate student/guardians, tutors, submit feedback, and file complaints.

19. Users will have the ability to rate and comment on the application.

20. Any user criticism will be forwarded to the admin authority

# 6. Non-Functional Requirements

The non-functional requirements of the system are as follows:

**Reliability:**

* The system must be always available and should not experience any downtime.
* All tasks must be completed without any software-related errors or with minimal errors.

**Performance:**

* It should return a search result in 2/3 seconds.
* The user interface must be visible in less than five seconds.

**Maintainability:**

* All this system's data must be maintained safe no matter what happens to it; hence the system will require data backup planning.
* If an error happens during any of the system's processes, the system will be able to trace each fault and correct it as quickly as possible before continuing the operation.

**Efficiency:**

* The system must be able to accommodate at least 1,000 individuals at the same time while also consuming minimal resources such as memory, CPU, and disk space.

**Security:**

* To utilize this system, users must first register, after which only registered users can access the system's features by logging in with their ID and password.
* Ascertain that the system, or any of its data, is never subjected to malware attacks or illegal access.
* Unless it is required, a user's personal information or other data should not be available to other users.

**Scalability:**

* This system must be scalable because it will be used by anyone living in Dhaka to request tutors and students 24 hours a day all throughout the city. That is, regardless of how much memory, servers, or disk space is required, the system should be able to accommodate an increase in the number of users and processes without affecting performance.