

Advanced Programming

Student Learning Network

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ABSTRACT:

Often students especially those in secondary and primary schools face a similar problem that they don't grasp a particular topic well but understand other topics/subjects well, so we designed an android app for those students to cater this problem, this app will also provide extra features in it

INTRODUCTION:

Students Learning Network is a student's learning platform on Android OS which will connect students with other needy students they can help and will also connect them with other students when they need some help in a topic or subject, the app will do the job automatically based on the searching and matching algorithms we implemented in the application.

PROBLEM STATEMENT:

Students have noticed this problem in every society and region of the world, especially when the students are in their middle/Primary school and also when they're in their university, what happens is that they sometimes understand a particular topic or subject really well, and it lets them enjoy taking part in school's learning process but at the same time they lack in another subject too much that it affects their grades very much, which leads to overall decrease in their moral and their motivation to study even the subjects that they're good at, and in most of these cases all they require is someone who understands the topic/subject well to help them, that someone can be their instructor or their friend or their school fellow, and for the instructor they're handling sometimes 100s of students and it is quite difficult for them to help a student in such level, so the students must approach the lower levels first before referring their problem to the instructor, we have designed an efficient product/app to help students and faculty with this problem.

OUR PROPOSED SOLUTION:

What we aim to design is an application which runs on the android Operating System which is the most widely used type of OS and is accessible to all the students in cheap prices, we're designing an app for android which is a student learning platform, what it does is that it divides the subjects that the students are studying into a series of topics, and when the students are learning those topics in school, and a topic is marked finished by the instructor the app will provide all the students with a quiz that the students take part in, the quiz also provides the instructor the feedback of all their students regarding every topic and it also connects the students with one another based on how much they're good at/ or scored better at the quizzes of a particular topic, so the students lacking in one topic are connected automatically to the students who're good at the particular subject and vice versa, what it does is that it helps maintain the students' learning in the same level and also provides instructors the feedback about every topic which can be used for evaluation, it also lessens the burden of the instructor which doesn't need to cater every student separately, but the students themselves solve their problem helping each other using the app, the app will also have an option to refer the matter to the instructor in case is has greater problems which the students are unable to help themselves with, by this feature the students can get the instructor involved in their learning sessions when needed.

DESIGN:

The app has login and signup feature a student and instructor first have to sign up, now there's also an account of the Admin type which is handed over to the school's administration by the owners of the application, the admin first assigns instructors their relevant subjects, now the students register for a class and they're automatically enrolled in their subjects and will get the news posted by the instructors of the relevant subjects in their news feed, both the instructor and the students can check their inbox for any new sessions which are generated by the algorithm, in the sessions the members are student 1, student 2 and the instructor, but the instructor is only invited if both the students in the session refer to him.

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IMPLEMENTATION:

We used Android studio to develop our app, used Volley and OKHTTP3 for handling requests and responses from the server, the server we used is PHP based server which handles the data model, which is present in our database and provides the application with data when needed and also stores the state of the application.

REQUIREMENTS ELICITATION:

Our main source of requirements elicitation were the forms or questionnaires that the students of POF Model High School, Wah Cantt filed up, it had number of questions related to the problem and also the solution we provided for it/our android app, which helped us to deduce the requirements of the product, that they are correct or not or do they require change or not?

This were the form for students and faculty respectively.

Requirements Elicitation for Students' portal Android App

NAME?

Gender?

☐ Male ☐ Female

AGE GROUP?

☐ 5-12 ☐ 12-16 ☐ 16-22

HAVE YOU EVER BEEN IN A SITUATION WHERE YOU UNDERSTAND ONE TOPIC/SUBJECT REALLY WELL AND THE OTHER JUST GOES ABOVE YOUR HEAD?

☐ Yes ☐ Maybe ☐ No

HAVE YOU EVER JOINED OR ARE STILL IN AN ACADEMY/TUITION SERVICE TO HELP YOU UNDERSTAND THE SUBJECTS YOU'RE STUDYING AT SCHOOL/COLLEGE BETTER?

☐ Yes ☐ Maybe ☐ No

HAVE YOU EVER BEEN IN A SITUATION WHERE YOU JUST NEED HELP FROM SOMEONE WHO UNDERSTANDS A PARTICULAR SUBJECT/TOPIC WHICH YOU DON'T UNDERSTAND?

☐ Yes ☐ Maybe ☐ No

WOULD YOU LIKE IT IF AN ANDROID APP IS DESIGNED FOR YOU THAT WILL CONNECT YOU WITH PEOPLE WHO CAN HELP YOU ON STUDY TOPICS/SUBJECTS THAT YOU'RE LACKING IN AND THEY'RE GOOD AT?

☐ Yes ☐ Maybe ☐ No

IF THE APP DOES WHAT IT TELLS EFFICIENTLY, WOULD IT LESSEN YOUR BURDENS REGARDING STUDIES?

☐ Yes ☐ Maybe ☐ No

Students form

Requirements Elicitation for Students portal Android App

NAME?

Gender?

☐ Male ☐ Female

AGE GROUP OF STUDENTS YOU TEACH?

☐ 5-12 ☐ 12-16 ☐ 16-22

HAVE YOU EVER HAD STUDENTS WHO'RE CAPABLE IN ONE SUBJECT BUT LACK IN ANOTHER?

☐ Yes ☐ Maybe ☐ No

HAVE YOU EVER HAD ANY DIFFICULTY MAKING SURE THAT YOUR STUDENTS UNDERSTOOD THE TOPIC WELL?

☐ Yes ☐ Maybe ☐ No

WOULD YOU LIKE IT IF YOU HAVE FEEDBACK OF ALL YOUR STUDENTS ABOUT EVERY TOPIC YOU TEACH THEM?

☐ Yes ☐ Maybe ☐ No

WOULD YOU LIKE IT IF AN ANDROID APP IS DESIGNED FOR YOU AND YOUR STUDENTS THAT HELP THEM LEARN BY CONNECTING THEM WITH ONE ANOTHER BASED ON THEIR NEEDS AND ALSO PROVIDES YOU FEEDBACK/EVALUATION?

☐ Yes ☐ Maybe ☐ No

IF THE APP DOES WHAT IT TELLS EFFICIENTLY, WILL IT LESSEN YOU AND YOUR STUDENTS' BURDEN?

☐ Yes ☐ Maybe ☐ No

Faculty form

RESULTS & ANALYSIS:

Students:

Got the following response from the students in a total of 85 forms filled.

Age group:

7.2% of them were of age group **5-12**

78.3% of them were of age group **12-16**

14.4% of them were of age group **16-22**

Gender:

73.5% of them were **female**

26.5% of them were **male**

Question	Yes	No	Maybe
HAVE YOU EVER BEEN IN A SITUATION WHERE YOU UNDERSTAND ONE TOPIC/SUBJECT REALLY WELL AND THE OTHER JUST GOES ABOVE YOUR HEAD?	27.6%	7.6%	64.6%
HAVE YOU EVER JOINED OR ARE STILL IN AN ACADEMY/TUITION SERVICE TO HELP YOU UNDERSTAND THE SUBJECTS YOU'RE STUDYING AT SCHOOL/COLLEGE BETTER?	41.5%	56.9%	1.5%
HAVE YOU EVER BEEN IN A SITUATION WHERE YOU JUST NEED HELP FROM SOMEONE WHO UNDERSTANDS A PARTICULAR SUBJECT/TOPIC WHICH YOU DON'T UNDERSTAND?	63.0%	7.6%	29.2%
WOULD YOU LIKE IT IF AN ANDROID APP IS DESIGNED FOR YOU THAT WILL CONNECT YOU WITH PEOPLE	73.9%	21.5%	4.61%

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WHO CAN HELP YOU ON STUDY TOPICS/SUBJECTS THAT YOU'RE LACKING IN AND THEY'RE GOOD AT?			
IF THE APP DOES WHAT IT TELLS EFFICIENTLY, WOULD IT LESSEN YOUR BURDENS REGARDING STUDIES?	15.3%	29.2%	53.3%

Faculty:

We got the following response from the faculty in a total of 85 forms filled

Age group Teaching:

30% of them taught age group **5-12**

100% of them taught age group **12-16**

30% of them taught age group **16-22**

Gender:

80% of them were **female**

20% of them were **male**

Question	Yes	No	Maybe
HAVE YOU EVER HAD STUDENTS WHO'RE CAPABLE IN ONE SUBJECT BUT LACK IN ANOTHER?	70%	10%	20%
HAVE YOU EVER HAD ANY DIFFICULTY MAKING SURE THAT YOUR STUDENTS UNDERSTOOD THE TOPIC WELL?	60%	20%	20%
WOULD YOU LIKE IT IF YOU HAVE FEEDBACK OF ALL YOUR STUDENTS ABOUT EVERY TOPIC YOU TEACH THEM?	80.0%	0%	20%
WOULD YOU LIKE IT IF AN ANDROID APP IS DESIGNED FOR YOU AND	100%	0%	0%

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YOUR STUDENTS THAT HELP THEM LEARN BY CONNECTING THEM WITH ONE ANOTHER BASED ON THEIR NEEDS AND ALSO PROVIDES YOU FEEDBACK/EVALUATION?			
IF THE APP DOES WHAT IT TELLS EFFICIENTLY, WILL IT LESSEN YOU AND YOUR STUDENTS' BURDEN?	20%	20%	60%

The analysis of the data shows that most of the students especially females have more of the problem that the product aims to solve, and the majority of the feedback was in favor of the requirements we devised for our product, and the age group of the students that we targeted was majorly from 12-16 years of age i.e. primary—secondary school students.

CONCLUSION:

We concluded from our requirements elicitation process that the students of Pakistan especially of age group 12-16 are facing the problem very much and a product which would help them with the matter and can lessen their burden of studies and can make their student life more easier can be a very effective tool which can be used by educational institutions to evaluate their students and also to improve the quality of education of their institute.

ANNEX:

The app functions as follows:

Three types of user can log in the application. (Admin, Instructors, Students). The admin logs in to assign the courses to the students and the instructors. The instructor logs in the check his News Feed in which the marks of the students are being shown so that the instructor is able to see which student is weak in which topic. He can go to add the completed topics which he has already taught the students. When he is done adding the completed topics, he is able to make a quiz for those topics. He can also post a news for the students such as “There will be a quiz of a specific today on the following day”. He can then logout. When a student logs in, the student is able to see the news posted by the instructors. He can then go check out his courses and topics. After he’s in that activity, he can click on any

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topic to give the quiz of that topic if the quiz of the specific topic is already created by the instructor. He can only give a quiz of a specific topic once. Once he is done with his quiz and all the students as well, a session is automatically created for all the students. In a session, a weak student is connected automatically with a strong student who had good marks in that topic quiz. Therefore the student who scored good marks is able to help the student who had less marks in that topic. If both students find it difficult to understand something in a given topic, they can refer to the instructor who taught the topic. Once both students agree to refer the instructor, the instructor joins the session and is able to help both the students then.
