Psychometrix (Android Application)

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ABSTRACT

The dawn of the computer era has given rise to an unprecedented imbalance in the Demand-Supply anomaly in eligible candidates and job openings. Every student wants to be at his employable best at the campus recruitment drive to maximize his chances of being placed. To prepare himself for that, a student requires to know where he falls short and what his strength are and for that he will need a psychometric analysis and assessment. We plan on addressing this need by creating a system which tests, evaluates, interprets, and advices the test-taker on what he needs to do to be at his employable best. The students will be evaluated for their Intellectual Quotient (IQ) which will encompass varying sections of skill testing (7 to be precise).The evaluation sheet will comprise of an attractive graphical and statistical representation of the domains which the student would be tested for. 'Psychometrix' is an application rendering a basis of evaluation for students, teachers and laymen alike. The project will also provide an archived section of question and puzzles which will be called the brain gym and will help us cater to the students need to train in particular spheres of mental abilities.

1. INTRODUCTION

In the current employment scenario, students are often at a disadvantage despite the high standard of offered to them. This is because they are often short of the critical skills, confidence and smartness needed to excel in the selection test and the ability to handle the pressure in the today's global work scenario. Apart from the technical skills, today's employers focus more on the analytical skills, logical thinking capability, out of the box thinking attitude, communication skills and the overall presentation of the candidate.

Intelligence is derived from mixture of inherited characteristic such as development or social characteristics. Usually, it is a combination of the acquired characteristics and environmental factors. Intelligence is unique in every human being it differs according to the activities, exercise (to brain like problem solving) and many other things. To differentiate the mental ability of the human beings, we need to measure the key attributes of the human beings persist, one such attribute is human intelligence.

The Binet-Simon test has undergone periodic revisions, Lewis has used the latest revised test and named it as Stanford Binet Intelligence test. In this Stanford binet intelligence test the ratio of mental age to the chronological age of a child is calculated, which results in the new metric called IQ (Intelligent Quotient). IQ= (Mental age/Chronological age)*100 by the above formula an individual IQ can be calculated.

There are several theories related to the measurement of human intelligence which help in understanding what intelligence actually does mean such as cognitive, contextual, and psychometric theories. Each of these portrays the term intelligence from a different point of vantage. The following sections portray important discussions identified from these theories also suggesting the need to measure intelligence and how one could measure the human intelligence.

It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather, it reflects a broader and deeper capability for comprehending our surroundings—"catching on," "making sense" of things, or "figuring out" what to do".

IQ scales are ordinally scaled. While one standard deviation is 15 points, and two SDs are 30 points, and so on, this does not imply that mental ability is linearly related to IQ, such that IQ 50 means half the cognitive ability of IQ 100. In particular, IQ points are not percentage points.

On a related note, this fixed standard deviation means that the proportion of the population who have IQs in a particular range is theoretically fixed, and current Wechsler tests only give Full Scale IQs between 40 and 160. This should be borne in mind when considering reports of people with much higher IQs. By this definition, approximately two-thirds of the population scores between IQ 85 and IQ 115. About 5 percent of the population scores above 125, and 5 percent below 75.IQ scores have been shown to be associated with such factors as morbidity and mortality, parental social status, and, to a substantial degree, biological parental IQ. While the heritability of IQ has been investigated for nearly a century, there is still debate about the significance of heritability estimates and the mechanisms of inheritance.

The IT industry has seen stupendous growth during the last decade. It employed around five lakh employees in 1999 and today, it directly employs twenty five lakh employees. Also, the indirect employment attributed to IT & ITES sector, is approximately 80 lakh. As per NASSCOM, the workforce in Indian IT industry is expected to touch 3 crore by 2020. This year, there is a plan to recruit nearly 2.5 lakh engineering graduates from various campuses. For example, TCS plans to add 60,000 workers this year. Infosys plans to hire around 45,000 people this year. Similarly, Cognizant recruited 25,000 professionals last year and plans to hire a similar number of engineering graduates this year also.

In addition to Indian IT firms, global giants like IBM, Accenture and HP, also have plans to hire in large numbers in India. This requirement of IT companies can be fulfilled by two different methods. In the first method, companies can reach out to the vast pool of talent through advertisements in newspapers. In this method, the prospective candidates approach the companies. This method may be particularly useful, if the number of job vacancies is less. When the number of vacancies is high, this method is time consuming. The other more proactive approach by the organization is to directly visit the campuses and recruit the candidates from those campuses. This method is referred to as **Campus Recruitment.**

2. PROBLEM STATEMENT

Campus recruitment training has become the need of the hour as the no of students eligible is tipping the scale against the placement opportunities. By some estimations, only 20% of students are eligible for placements drive are able to crack the aptitude test.

We seek to develop an application system to address this issue and help cater to IT engineering students of Nagpur prepare for the recruitment drive of the largest local recruiters. In our application, we will look to cover most of the common skills that a person needs to be successful. We will provide tests for calculation of Memory skills, Perception skills, Design skills, Word comprehension ability, Spatial Relations and Logical Abilities. There will also be a provision to rate it on a Stanford-Binet Intelligence scale. We also will provide an android based test conduction system. There will be considerable work done on the web based solutions but android will be given priority.

3. AIM/OBJECTIVE

All in all the aim is to create an Intelligence Quotient system to reckon with and one that fits all the requirements a good IQ test should comprehend. It should also have its own sections to help students prepare themselves for employment through our Aptitude, Logical and Verbal tests. We also look to create an integrated android based test system where the user can conduct test on any database of his liking.

The evaluation sheet will comprise of an attractive graphical and statistical representation of the domains which the student would be tested for. 'Psychometric' is an application rendering a basis of evaluation for students, teachers and laymen alike. The project will also provide an archived section of question and puzzles which will be called the brain gym and will help us cater to the students need to train in particular spheres of mental assessment.

The system will put the user through a series of tasks measuring various measures of intelligence including short-term memory, analytical thinking, mathematical ability and spatial recognition. Like all IQ tests it does not attempt to

measure the amount of information you have learned rather your capacity to learn. Once you've provided your answers we compare your results to the industrial requirement and then we provide a normalized score. Normalized scoring can be difficult to understand for those without a background in statistics. It's best to think of your score as a number which represents your employability quotient compared to the others.

4. DETAILS EXPERIMENTAL

An **intelligence quotient** (**IQ**) is a total score derived from one of several standardized tests designed to assess human intelligence. The abbreviation "IQ" was coined by the psychologist William Stern for the German term Intelligenzquotient, his term for a scoring method for intelligence tests he advocated in a 1912 book. When current IQ tests are developed, the median raw score of the norming sample is defined as IQ 100 and scores each standard deviation (SD) up or down are defined as 15 IQ points greater or less, although this was not always so historically. By this definition, approximately two-thirds of the population scores between IQ 85 and IQ 115. About 5 percent of the population scores above 125, and 5 percent below 75.

IQ scores are used for educational placement, assessment of intellectual disability, and evaluating job applicants. Even when students improve their scores on standardized tests, they don't always improve their cognitive abilities, such as memory, attention and speed. In research contexts they have been studied as predictors of job performance, and

I.   Intelligence Quotient(IQ)

This section will start by registering for the IQ test. The form will need to have fill valid name, age group and email id. Whole IQ section will comprised of 7 different section will be start by filling the form. On clicking the proceed button the next sections will be shown according to it. Respective subsections will show the questions in it and the cumulative score will beaded to the users score. This score will be added and final score will be your IQ.
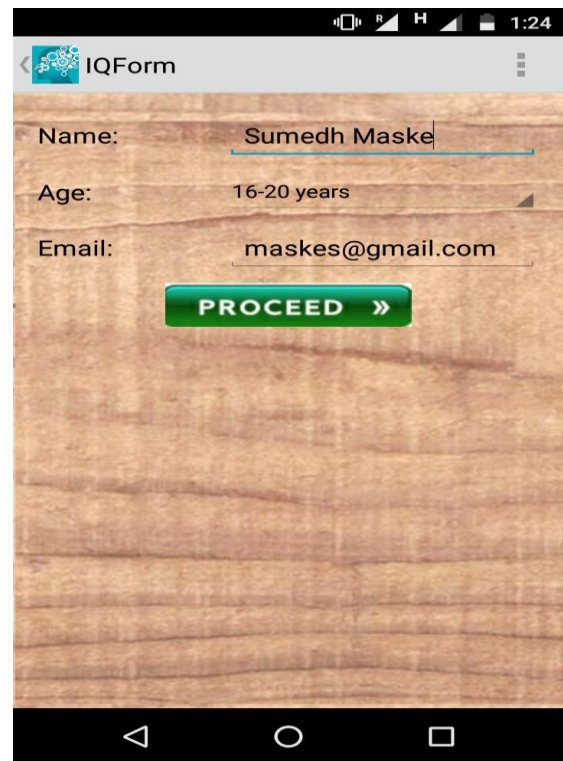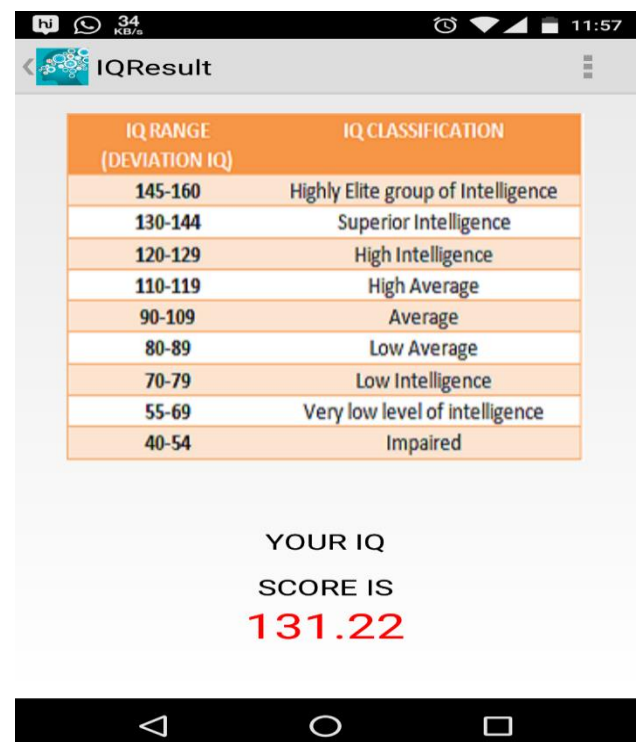

Fig1 . IQ test

II.   Result of IQ test

The result of an IQ test will be shown after going through 7 different phases of IQ test conduction. It will show the image which shows the range and your classification according to it. This score will be your cumulative score of an exam which is conducted in 7 different sections on an IQ test.

IQ RANGE (DEVIATION IQ)	IQ CLASSIFICATION
145-160	Highly Elite group of Intelligence
130-144	Superior Intelligence
120-129	High Intelligence
110-119	High Average
90-109	Average
80-89	Low Average
70-79	Low Intelligence
55-69	Very low level of intelligence
40-54	Impaired

YOUR IQ
SCORE IS
131.22

Fig2. Result of IQ test

III. Employability Quotient(EQ)

This section of the application will provide the option of selecting the mode of accessing the further services. The options provided will be to give a test of the specific topic or to study the questions provided in that topic. Training option will take the user to the next page where he will have to solve 20 different questions and training mode will provide the option of learning the topics selected by the user. This section will provide the answer with the solution.

This section will provide the 20 randomly selected questions from the database and will shown. The time limit to solve the problem is provided in this section. The exam will end after the time limit ends. The results will be shown at the end of the exam. It will end automatically after the 10 minutes or user can finish the test when user wants to.
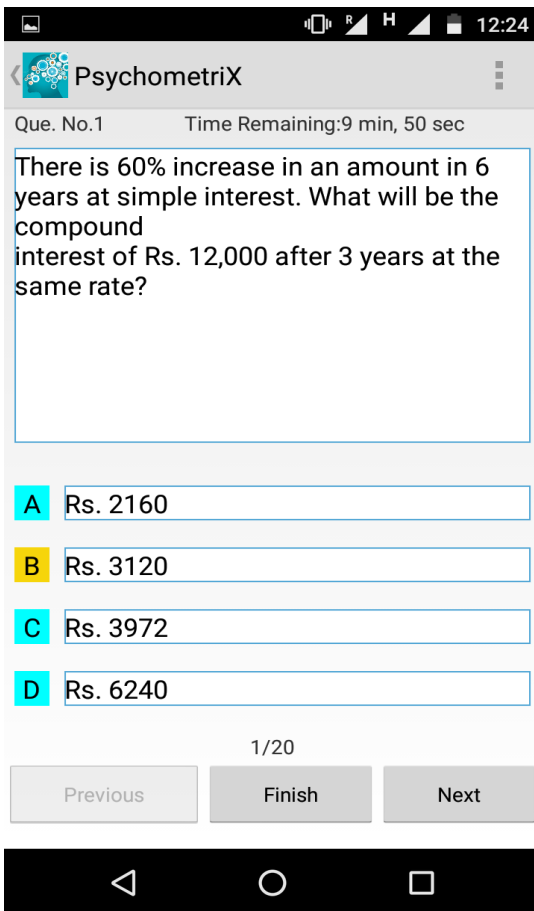
IV. Online test

The specification of giving the online test of specific subject will totally depend on the test id provided to it. It can also be possible that many test ids can be provided to the user and one of them can be selected by the user and can give test according to it .user will need to provide the specific test id and name along with it. It should be valid otherwise application will give an exception and will not start the test.

V. Study mode

This section will first display the main section of the study mode that is quantitative, verbal and logical. On selecting one of the 3 options given the further process will be decided. There are 3 sections quantitative verbal and logical each of them will have respective subsection under each category.
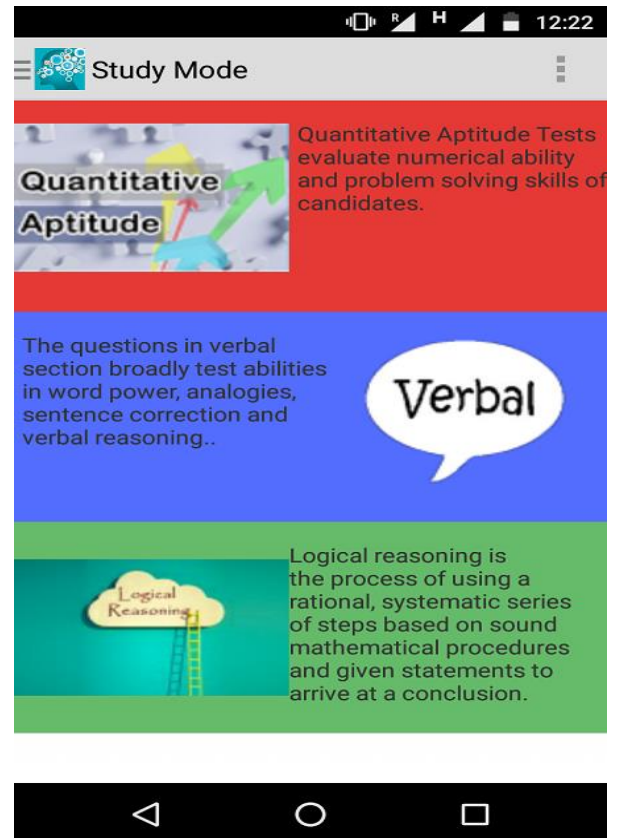

Fig3 . **Employability Quotient**

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Fig4. Study mode

VI. Display of questions in study mode

In this section user will be provided with the option of seeing the results of the answer at the solution button. On selecting the answer out of the given 4 options, the correct answer will be shown automatically.
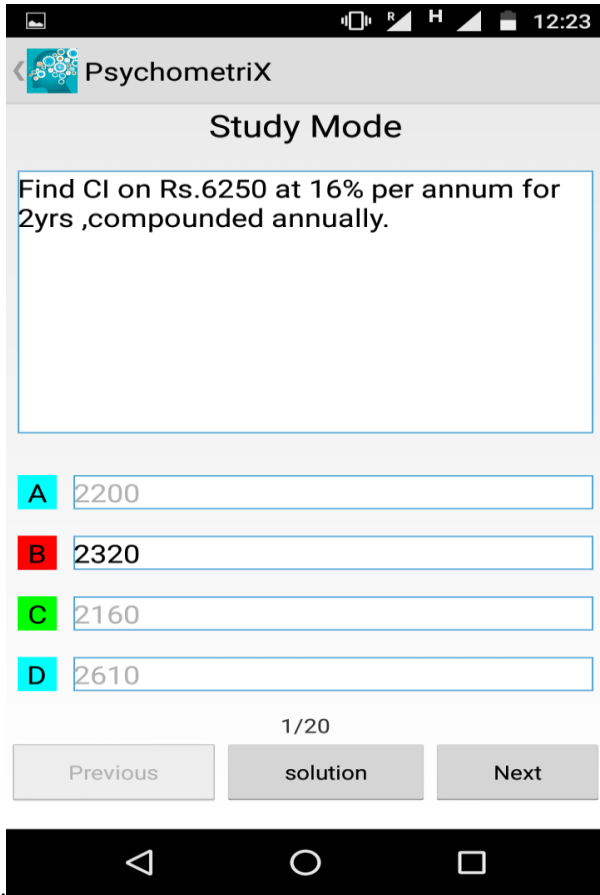

Fig5 . **Display of questions in study mode**

5. FLOWCHART

A flowchart is a type of diagram that represents an algorithm, workflow or process, showing the steps as boxes of various kinds, and their order by connecting them with arrows. This diagrammatic representation illustrate a solution model to a given problem. Flowchart are used in analyzing, designing, documenting or managing a process or program in various field. The diagram is showing the how system will work, it gives the idea about how the web pages are interlinked to each other. At the homepage the option will be provided to go to the EQ or IQ section. Other field will be provided according to the option selected the EQ section will consist of the test mode and the study mode. The further action will be selected on it.
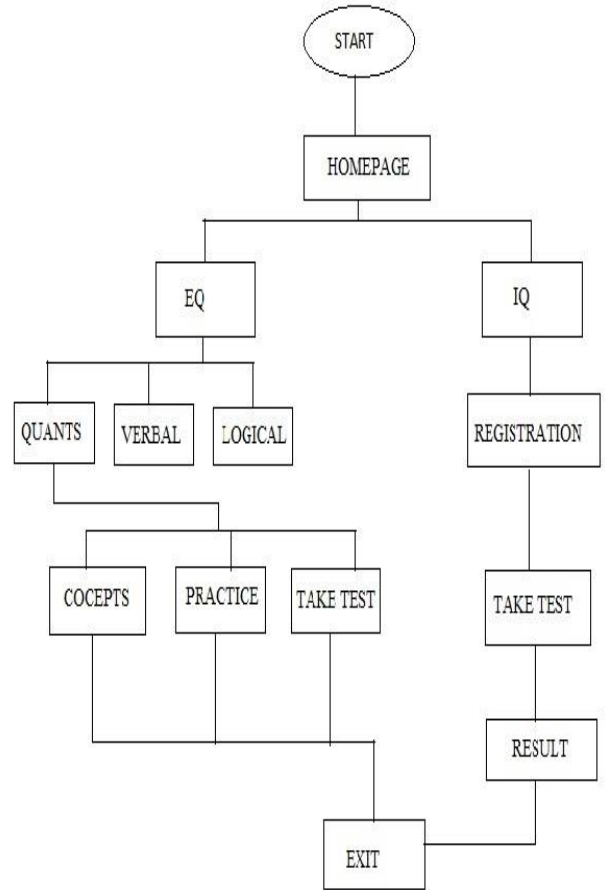
6. CONCLUSIONS

The use of aptitude and knowledge tests to screen potential job applicants has long been standard practice across many different sectors. As such they have become an important and integral part of the overall interview process.These days, any job vacancy is likely to attract a large pool of potential candidates. Pre-screening these applicants can help reduce the number to a more manageable size who will then go forward into a more rigorous screening phase.Providing the tests are applied correctly, they can be a representative measure of performance similar to actually placing that person in the job. The entire purpose behind making this application is to answer the need to employment trainers. We have to first focus on the needs of various companies and that is exactly what we have looked to do through our project. In conjunction to this we have found that our aptitude training has certain benefits.

The user can test his Intelligence quotient on a Stanford-Binet scale by giving our 15min IQ test and he can also compare it with other individuals who have done the same. To fortify our belief of the IQ system we took to some surveys and found he following-"IQ test scores do not necessarily reflect a child or adult's actual intelligence, particularly when we give IQ tests under circumstances where there are no consequences for good or bad scores," Duckworth told Live Science. All in all ours is an Intelligence Quotient system to reckon with if fits all the requirements a good IQ test should comprehend. It also has its own sections to help students prepare themselves for employment through our Aptitude, Logical and Verbal tests. We have also integrated an android based test system where the user can conduct test on any database of his liking.

7. ACKNOWLEDGEMENT

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