

Monitoring of Evaluation Soft Skill Students Based on Android with Dynamic Programming Algorithm

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Abstract

According to search results and studies (IllahSailah, 2008) there is a difference in need and development as well as a perspective on hard skills and soft skills, Between the world of work / business and college at this time the ratio of the needs of soft skills and hard skills in the world of work / business inversely proportional to its development in college. Success in the world of work / effort 80% is determined by soft skills) it has and 20% is determined by hard skills. In Wikipedia (2010) it is written that soft skills are a sociological termination for a person's Emotional Intelligence Quotient (EQ), is the ability of how people relate to one another, such as communicating, listening, giving feedback, working together in a team, solve problems, contribute to meetings, and resolve conflicts. However, the condition of university students hasyimasy'ari is not aware of the importance of softskill ability. Therefore, researchers make an application for measuring or self-assessing students related softskill based android premises dynamic programming algorithm. Because android applications are now mushrooming among young people, especially students. This application can display the score of the value amount of softskill.

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BACKGROUND OF STUDY

According to the results of search and study (Illah Sailah, 2008) there is a difference of needs and development as well as the perspective of hard skills and soft skills between the world of work/business and college at this time as follows:

- a. The ratio of soft skills and hard skills needs in the world of work/business is inversely proportional to its development in college. Success in the work/business world is 80% determined by the soft skills it holds and 20% is determined by hard skills. But in practice our current education system especially in universities, the portion of soft skills development is only given an average of 10% in the curriculum, while 90% of it contains hard skills.
- b. The college view of graduates who are "high competence" are graduates with high GPA and graduate in quick time (<4 years). While the world of industry states that what is meant by graduates who are "high competence" is those who have the ability in technical aspects and good attitude. A course is considered good by the college, if the graduate has a short waiting time to get the first job, but the industry says it is not, but how tough a graduate to have a commitment to the agreement he made in the first job In Wikipedia (2010) it is written that soft skills is a sociological termination for a person's Emotional Intelligence Quotient (EQ), is the ability of how people relate to one another, such as communicating, listening, giving feedback, working together in a team , Solve problems, contribute to meetings, and resolve conflicts.

The results of research on the 50 most successful people in America (Illahsadilah, 2008) which shows that the most decisive their success is not hard skills, but the quality of self that included in the category softskills.

The difference of facts in the field and point of view between the world of work / business and college today as it is in advance, it is necessary to build the same mind set in the development of hard skills and soft skills, at least in the internal college. See the above persolan then the authors raised research Monitoring Evaluation Softskill Student-based android with dynamic programming algorithm.

RESEARCH PROBLEM

The research problems of this research are:

1. The condition of students of Hasyim Asy'ari University who are still less aware of the importance of softskill ability.
2. Students who are only oriented to sit quietly listen without following the activities outside the classroom that is still in the university environment.
3. Organization of student affairs activities often stagnant not even walk because softskill that is not built.
4. The completion of lecture assignments that are always delayed even to many are underestimated

OBJECTIVES OF STUDY

1. Students are able to evaluate themselves more specifically in the ability of soft skills
2. Students actively participate in outside class activities that can support the progress of academic ability
3. Students can organize student organizations by cooperating and mutually motivating fellow managers and members of the organization
4. Students are aware of the importance of completing lecture assignments in a timely and systematic manner

LIMITATION OF STUDY

1. This study focuses on the evaluation process of student soft skills, not cognitive and motor skills.
2. The object of this research is all students of faculty of information technology university hasyimasy'ari.
3. Applications used only android based.
4. This application does not measure the level of awareness of softskill but the amount of scoring softskill.

LITERATUR REVIEW

1. Softskill

The competence of soft skill that is competence can only be interpreted through observation of human behavior. While the competence of hard skill in the form of technique or skill is easier to observe because it can be measured quantitatively. Someone who has a good soft skill, is a person who can be empowered in the future because it can manage personal life both internally into himself and externally in a relationship with others. (Purdue, 2002 in www.cco.purdue.edu/Articles/Article-SoftSkills.shtml).

In the regulation of Law No. 20 of 2003 explains that education is a conscious and planned effort to develop the potential of learners in order to have spiritual strength, self-control, personality, intelligence, noble character, as well as the skills needed him, society, nation and state.

Provision for the role as a person, community member, nation and country that is to be prepared through education, so that the concerned can successfully play it. The essence is that the education is done for the future role of the students. Thus, the subjects and learning experiences that students get are "tools" and not educational objectives. The ability that is necessary for a person to live successfully (as a person, as a servant of God, as a member of society / nation / state) is called life skill, which can then be grouped into soft skills and hard skills. Some experts define life skills as the ability to deal with life's problems, then proactively address them wisely and creatively (Depdiknas, 2004).

2. Android

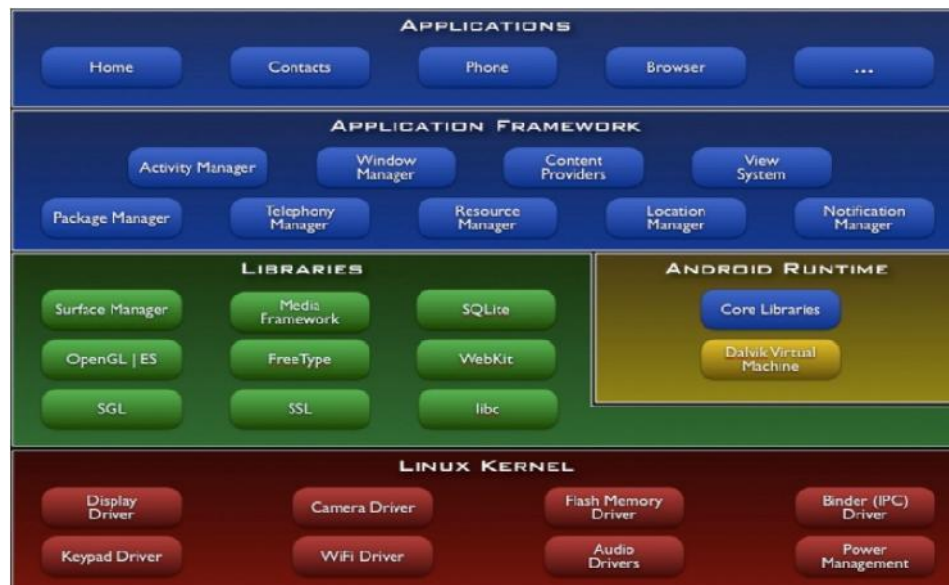
According to the official website of Android (<http://developer.android.com>) and Lessard et.al (2010) and Bharati et.al (2010) Android is the operating system for mobile phones based on Linux. Android provides an open platform for developers to create their own applications for use by various mobile devices. Initially, Google Inc. Buy Android Inc., a newcomer who makes software for mobile phones. Then to develop Android, the Open Handset Alliance was formed, a consortium of 34 hardware, software and telecommunications companies, including Google, HTC, Intel, Motorola, Qualcomm, T-Mobile and Nvidia.

The author quotes from (<https://www.lintasteknologi.com/1649/urutan-versi-android.html> 08/04/2017), There are several versions of Android operating system related Android Sequence Sequence from Lowest to Highest and many installed android users, please refer to the following full article:

Sequence of Version Level of Android Operating System

1. Apple Pie (Alpha) 1.0 is The first android version was released on September 23, 2008.
2. Banana Bread (Beta) 1.1 is Right in February 2009 android released the latest version.
3. Cupcake 1.5 is The sophistication of this Android OS is shown in this version. And also become the first step Google make the name of food on versandroidnya.
4. Donut 1.6 is Android This version was released to fix the bug that makes Android more perfect.
5. Eclair 2.0 / 2.1 is Released in October 2009.
6. Froyo / Frozen Yogurt 2.2 is Officially published in May of 2010.
7. Gingerbread 2.3 is In this android 2.3 version of Google adds new features of NFC, Internet Calling, Download Manager.
8. Honeycomb 3.0 is Especially for this version of Honeycomb Tablet intended. Because that year the tablet is getting popular.
9. Ice Cream Sandwich 4.0 is Android operating system is sourced from Linux kernel 3.0.1, which was then released in October 2011. Ice cream sandwich version is experiencing a new change especially in the design that more smooth, simple, beautiful and smart.
10. Jelly Bean 4.1 is Android version of Jelly Bean was released on June 27, 2014. Jelly Bean itself became the Android version that many update for the perfection of the series. When viewed from previous versions, this Version updates changes to the User Interface is more elegant as well as the addition of Google Search feature.
11. KitKat 4.4 is Android This KitKat version is most widely used on smartphones today and also the most popular version because of some advantages of its features.
12. Lollipop 4.5 is Android Lollipop is the latest version of Android launched by Google in 2014.
13. Marshmallow 6.0 is Officially First introduced and released in October 2015.
14. Android Nougat is Android Nougat is the most recent operating system and certainly has many changes one of them Integration of voice and unlock face detection.

As for Android Architecture is like the picture below:



(Figure1. Android architecture).

Source: <http://mobiledevdesign.com/learning-resources/take-economical-path-mobile-application-testing>)

Android Layers arranged in the Android architecture are :

1. Applications Layer: Android will combine with a series of core applications including email client, SMS program, calendar, maps, browser, contacts, and more. All applications are written using Java programming language.
2. Application Framework Layer: By providing an open platform of development, Android developers offer the ability to build extremely rich and innovative applications. Developers are free to take advantage of hardware, access location information, run background services, set alarms, add notifications to the status bar, and more. The developer has full access to the same API framework used by the core application. This application architecture is designed to simplify component reuse, any application can publish capabilities and other applications can use their capabilities (limited to the security constraints provided by the framework). The same mechanism allows components to be replaced by the user.
3. Linux Kernel Layer: Android relies on Linux version 2.6 for core system services such as security, memory management, process management, network stack, and driver model

3. Dynamic Programming Algorithm

Dynamic programming is a problem-solving method by outlining the solution into a set of steps or stages so that the solution of the problem can be viewed from a series of interrelated decisions. In solving the problem with this method: (1) there is a finite number of possible options, (2) the solution at each stage is constructed from the result of the previous solution, (3) we use optimization requirements and constraints to limit the number of options to be considered at a stage .

Two approaches used in Dynamic Programming are forward or up-down and backward or bottom-up. Let x_1, x_2, \dots, x_n

FINDING AND DISCUSSION

Researchers get from the faculty of information technology university of hasyim asy'ari in the form of student data with item Name, Prodi and softskill type of value. Due to the information technology faculty classified as new with the number of 3 Prodi namely Informatics Engineering, Information Systems and informatics management, the number of students as Number of students of Engineering Informatics starting from year 2013 until 2016 are 153, information system are 32 management Informatics are 4

So the total number of students of information technology faculty are 189 students. The criteria of student softskill assessment in the faculty of information technology is

1. The components of soft skills assessed is Leadership
2. The components of soft skills assessed is to resolve problems
3. The components of soft skills assessed is Teamwork
4. The components of soft skills assessed is ethic

From the data of softskill value is processed on the server computer and displayed on the client page accessed from android. The results of the display of softskill value processing on the server as:

1. Student of information technology faculty

No.	Nama Siswa	Prodi	Status	#Pilihan
1	Hadden Rendra Padantya	Teknik Informatika	Tidak Lulus	Action
2	Rico Arven Kelvin	Teknik Informatika	Lulus	Action
3	Bagas Salihin	Teknik Informatika	Tidak Lulus	Action
4	Saveri Abel Alterio	Teknik Informatika	Lulus	Action
5	Kiky Aulia Wardani	Teknik Informatika	Tidak Lulus	Action
6	Attala Rafa	Teknik Informatika	Lulus	Action
7	Fitra Aprilianto	Teknik Informatika	Lulus	Action
8	Aji Pangestu	Teknik Informatika	Tidak Lulus	Action

(Figure 2. Name of student)

2. Input for Softskill score of student

Penilaian Softskill Mahasiswa

Menu

sinichi kudo

Beranda

Data Jurusan

Data Mahasiswa

Data Nilai Softskill

Penghitungan Dynamic Programming

Import Data Mahasiswa

Edit Data Mahasiswa

Nama Lengkap: Hadden Rendra Padanya

Prodi: Teknik Informatika

Nilai Tes:

Kepemimpinan: 8.3

Menyelesaikan Masalah: 6.2

Kerjasama Tim: ☐ Ya ☒ Tidak

Etika/Moral: 165

Naik Semester Berikutnya: ☒ Rekomendasi ☐ Tidak Direkomendasikan

Ubah Data Mahasiswa

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(Figure 2. Input score of softskill)

3. View of softskill score

Penilaian Softskill Mahasiswa

Menu

sinichi kudo

Data Mahasiswa

Data Nilai Softskill

Penghitungan Dynamic Programming

Import Data Mahasiswa

Petuang status Kelulusan

Hasil Perhitungan

Filter Data: Lulus

1. Jurusan Teknik Informatika

Tampilkan 10 baris

Cari Cari Data...

Ekspor (.csv) Ekspor (.xlsx)

No.	Nama	Kepemimpinan	Menyelesaikan Masalah	Kerjasama Tim	Etika/Moral	Naik Semester Berikutnya	Status Kelulusan?
1	Rico Arven Kelvin	Cukup	Bagus	Tidak	Tinggi	Rekomendasi	Lulus
2	Saveri Abel Alterio	Bagus	Bagus	Tidak	Tinggi	Rekomendasi	Lulus
3	Attala Rafa	Bagus	Bagus	Tidak	Tinggi	Rekomendasi	Lulus
4	Fitra	Cukup	Bagus	Tidak	Sedang	Rekomendasi	Lulus

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(Figure 3. View of softskill score)

CONCLUSION

1. Softskill value data is processed by using dynamic programming algorithm, coding is much more effective when compared without dynamic programming algorithm
2. Dynamic programming calculation is only displayed in the server view

SUGGESTION

1. This research must not only stop here, but it must be continues not only used dynamic aprogramming algorithm but may use by another algorithm.
2. This research should be continued in Indonesian zone, using Pesantren softskill value and also Islamic institutions as the object of study

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