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MOCA: Malaysian Online Coding Academy

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ABSTRACT

Programmer is one of the hottest jobs nowadays. The need of competent programmer is increasing. But the gap between expected skillful software engineer and IT graduate skills is too big. This paper is discussing how an online integrated portal can help producing good software engineers with high programming skill and matching their competencies with job opportunity.

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1.   INTRODUCTION

Now a days software has become a powerful business tools for every industry. Every field of industry needs software to automate manual system. Mostly industries use software to automate information system. Information is very important asset that cannot be ruined. The stream of information from one entity to another entity in a company must have a good flow. The speed and accuracy plays important roles. Computer software is one of the technologies that answer these challenges. However the development and maintenance is not easy task. To develop or maintain software a company must have a programmer. The term computer programmer can refer to a specialist in one area of computer programming or to a generalist who writes code for many kinds of software [1].

2.   BACKGROUND

The needs of computer programmer will increase in line with industrial development. There are many companies ready to pay high competent programmer. In 2020 America which is country where computer first introduced there will be 1000.000 jobs opportunity as a programmer [3].

On the other hand, according to businessinsider.my US News has released its list of the 100 best jobs in 2014, and the No. 1 job on the list is: software developer, while computer system analyst is in 2nd place and web developer is No. 9 in the list
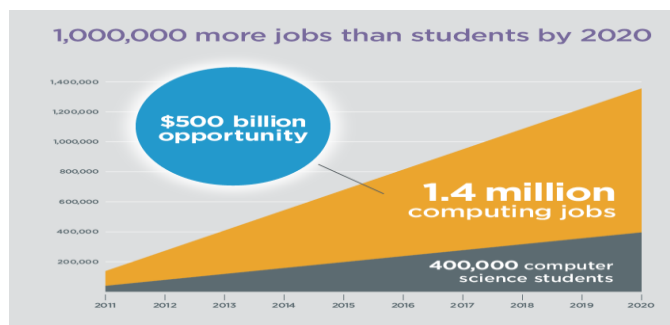
Figure 1. Programmers job opportunity in America 2020

3. LITERATURE REVIEW

In order to be a good programmer, a person must have good programming skill. The problem is how to acquire this skill. Even though there are many schools that has computer subject in their curriculum. Only few of them have programming subject. According to code.org, 9 out of 10 do not even offer computer programming class [3]. Thus it is difficult for hoping formal institution to produce competent programmer.

Another way to learn programming is independent learning. This method enforced learners to understand programming by reading books, analyze sample code or asking expert. In order to do independent learning people may need some facility to improve the learning effectiveness. There are books, literature, sample code, good compiler, and expert programmer.

There are a lot of people realized the problem of high demand of programmers. They who realized the problem try to solve it by developing a website for people to learn programming. Nowadays we can learn programming through a website. Below, 10 example places people can learn to code, incorporating Mitch Resnick, who spoke at TEDxBeacon Street in November suggested.

1. At Codecademy, you can take lessons on writing simple commands in JavaScript, HTML and CSS, Python and Ruby. (See this *New York Times* piece from last March, on Codecademy and other code-teaching sites, for a sense of the landscape.)
2. One of many programs geared toward females who want to code, Girl Develop It is an international nonprofit that provides mentorship and instruction
3. Stanford University's Udacity is one of many sites that make college courses—including Introduction to Computer Science-available online for free. [2]

The problem of providing learning platform can be solved by developing a website like mentioned above. But, how to measure the skill of the learners?. To get into real job in industry there is a minimum qualification. There must be a parameter and process to measure the quality of the outcome.
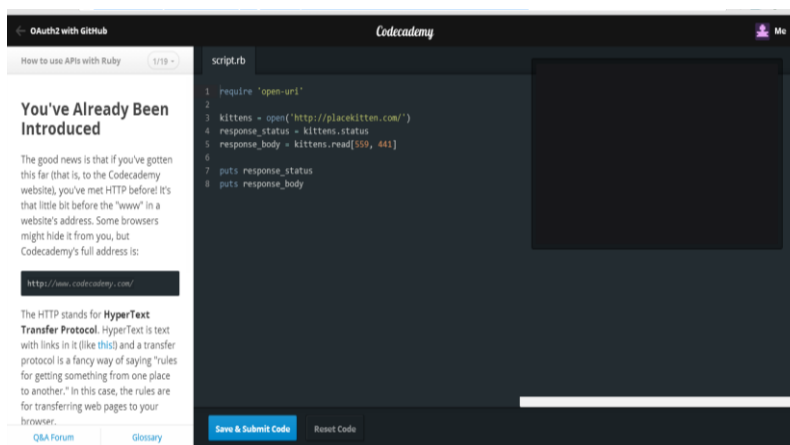

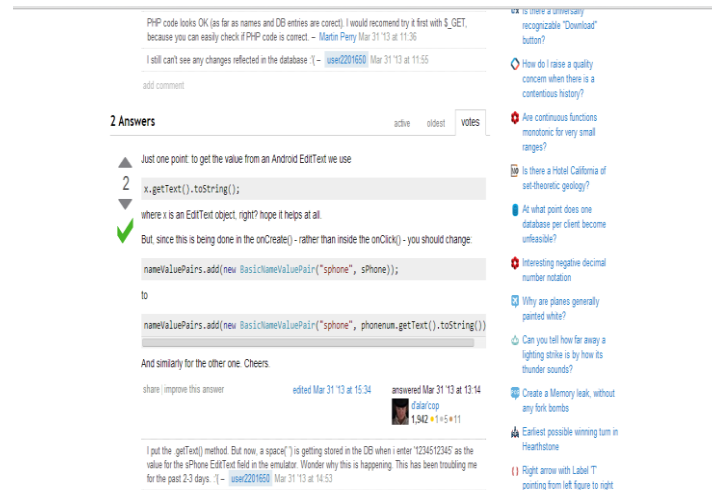Figure 2. Online Compiler (Code-Academy)

Figure 6. Stackover Flow Forum, User Discusses Their Code

There are so many online forums that talk and share on programming matter, let's take stackoverflow.com as an example. Stackoverflow.com is an online forum where people which mostly dominated by student can post a question regarding programming and MySQL. Thereafter, other stackoverflow members will try to answer and have a discussion on that question. Note that, sign in is required to make any post.

Surprisingly, most of the question is answered and discussed by some expert in stackoverflow accordingly to derive a solution for the particular problems and issue. Thus, it is wondered who is the experts that sincerely want to answer and have a spare time in stackoverflow.com? What does he/she do for living?

It can be inferred from the activity occurs in stackoverflow.com that most of the people who is very active in this web site is a student or in a part time job, while there must be someone expert in programming and MySQL in this websites who is not a jobholder.

Stack Overflow is a privately held website, the flagship site of the Stack Exchange Network, created in 2008 by Jeff Atwood and Joel Spolsky, as a more open alternative to earlier Q&A sites such as Experts Exchange [5]. Forum enables knowledge exchange between learners.

a. Video tutorial

In online course direct guidance from teacher or trainer is impossible. However, direct guidance is an effective teaching method. In online courses it can be tackled up by providing video tutorial. The research done by Devaney in 2009 suggest that video presentations used as supplemental materials may provide instructional designers with a tool to create online courses that are as effective as traditional face-to-face courses [6].

Figure 5. MIT open courseware video

b.   Job matching

An employment website is a website that deals specifically with employment or careers. Many employment websites are designed to allow employers to post job requirements for a position to be filled and are commonly known as job boards. Other employment sites offer employer reviews, career and job-search advice, and describe different job descriptions or employers. Through a job website a prospective employee can locate and fill out a job application or submit resumes over the Internet for the advertised position [7].

Integrating employment website with will help employer and future employee to meet. In addition the discussed system provides users performance analysis. It helps employer to sort the prospective workers.

c.   Performance analysis

Measuring performance of learners is important. It aims to measure the gap of learner's goals and learners' knowledge. In code academy they keep track of user's goal and what they have achieved.

With this measurement feature user will be confidence with their knowledge and ready to enter real job environment.
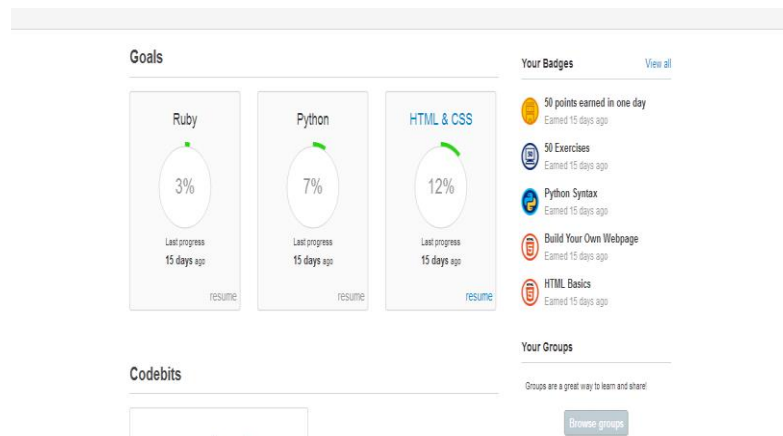

Figure 3: code academy individual achievement

4. PROPOSED SOLUTION

To tackle the problem of GE that is mentioned above, it is suggested to create an programmer online community which is connected to any programmer and software developer job pool.

In the future then, programmers that are active in the community can easily find a job by the community recommendation. Moreover, any job pool that essentially needs programmer for their company might contact the community provider to find a programming expert from the community.

a.   BMC

The Business Model Canvas (BMC) offers a structured but lightweight tool for vetting a business model- it gives the structure get from a business plan without the overhead and the flexibility and improvisation. Business Model Canvas describes, challenges, designs, and invents business models more systematically by using a 9 building blocks method. The business model canvas is most useful when looking at specific companies, that is why we are using and implementing it to create a template canvas for the Integrated Online Programming Learning and Job Matching Portal.

b.   Key Partners

For the Integrated Online Programming Learning and Job Matching Portal business model, key partners include major software companies, regional as well as national, universities, certification providers and professional programmers. To appeal to a wide variety of consumer tastes, Integrated Online Programming Learning and Job Matching Portal must have access to national name brands and plenty of services. College students can strongly influence the Online Programming Learning Portal while providing benefits for itself as well as for the portal. Moreover, since we are having software companies as a major partner, there is an opportunity to connect you to a job pool.

c.   Key Activities

The Online learning portal spends plenty of time for providing learning platforms for the users and making it more useful and convenient (through website design) and finding opportunities to make it closer and more familiar with them. Universities efforts are focused on encouraging customers to use interactive learning online portals more than using traditional way of learning. Moreover, it provides more

knowledgeable user. MOCA is coming up with new solutions for customer problems. while designing, making & delivering a product in superior quality.

d.   Key Resources

Key Resources are the most important assets required to make a business model work. Key resources can be physical, financial, intellectual, or human, accordingly we provide several tips of our key resources including server, software engineer (analyst, designer, programmer, tester) and money. Successful interactive learning portals are able to leverage the brand recognition among customer segments, which is built up through interactive learning activities. Accordingly, we are looking to provide the most important resources throughout our portal which are software engineers.

e.   Value Propositions

Our value propositions are based on solving the customers' problems and looking for the best solution for them. Our portal delivers the bundle of products and services that create value to customers, while making them satisfied. It encourages people to learn coding as well as teaching coding others. Beyond that, the further values which would be provided are: produce people with high competency at low cost, learners performance evaluation, ease company to get competent programmer and job and performance matching. Our value proposition is the reason why the customers turn to our company over another.

f.   Customer Relationships

Customer Relationships deeply influence the overall customer experience. That is why the interactive learning portal is mostly focused on direct communication through website and email. Whenever, a question is posted by a user, he would be able to get a correct and convenient answer shortly. Direct communication gives a better impression about the portal itself, not only by providing the answers immediately, furthermore for paying attention to a customer and placing him at first place. Basically, we would be providing 2 categories of relationships including automated services and communities.

g.   Channels

Channels are customers touch points that play an important role in the customer experience. The Channel building block describes how the integrated online learning portal communicates with and reaches our Customer Segments to deliver a Value Proposition. Communication, distribution, and sales channels comprise the portal interface with customers. That is why, we have created the website as main type of communication between the customer and us.

h.   Customer Segments

Customers comprise the heart of any business model. The Customer Segments building block defines the different groups of people or organizations an enterprise our aims to reach and serve while targeting profitable customers. We reach our customers throughout the different distribution channels. Our customers are sort of Mass market: because we focus on one large group of customers with broadly similar needs/problems. Accordingly, customers which we do serve include: all business companies that need an IT person, programming learner, job seekers and job hiring managers.

5. CONCLUSION

To conclude, it is inevitable that programming drives an important role in our daily life, even every manual system has changed to automate their system. Thus, programmer demands will increases through days.

On the other hand however, there is found problem to acquire decent programming skill, although there are many education institute includes computer in their syllabus. Meanwhile, some student does not touch any programming subject.

There are many ways to learn programming. One of them is by self-taught. It is a fact that self-taught programmer also has decent skill but could not find a job regardless their programming skill. Furthermore, there are many cases that Information Technology and Communication (ICT) graduates do not get a job immediate to their graduation.

To tackle the problem of programmer employability, it is advisable to create a programmer online community that connect programmer to a job pool. Thereby, companies who need IT professional can easily find a skillful programmer which is recommended by the community.

In a nutshell, MOCA is expected to be a solution for graduates employability especially ICT graduates by connecting them to companies.

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