Codingfolio

project

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Overview

Students new to programming are introduced to two different types of programming environments. The first type is Integrated Development Environment (IDE) such as Eclipse or NetBeans. The second type is text editors such as notepad or sublime. Programming beginners can instead learn software developing through an Educational IDE which offers a different, new environment. The Educational IDE focuses on developing and improving students' skills in programming through interactive programming.

The current programming environments students are introduced to are very limited and static.Text editors for example, offer minimal assistance for learning and programming basic concepts and techniques. IDEs such as Eclipse or NetBeans can be intimidating to new users and its autocomplete features can make certain things too easy. IDEs also provide an excessive amount of information and support for its features and assistance in debugging which can be overwhelming for new programmers.

Adopting the Educational IDE will be helpful in teaching students on how to solve problems and coding languages through progression and practice. An interactive Educational IDE will allow students to feel welcomed to the programming environment. The Educational IDE will grade the students' programs based on the given topic (tutorial). Students that run programs through the Educational IDE will have his/her program checked and be given a score. If the program is insufficient when compiled, it will return the expected score and prompt them on whether or not they want submit and run their program. Also, Professor or other can access student's program to leave a comment. Students can write better code with other's comment. To compile/run their program, students would press a button like an IDE, or type to compile/run through a terminal.

Intellectual Merit: As students, who need best programming, can instead learn software developing through an Educational IDE which offers a different, new environment. It focuses on developing and improving students' skills in programming through interactive programming. Tutorial and comment systems will helps improve students' programming skill.

Broader Impact: This Educational IDE will help students learn correctly. Most of the IDE is an environment tool for programming. Incorporating and educational and interactive environment, it will further improve students' programming skill.

Elevator Pitch

This project will be beneficial to both the beginner and the professional programmer. The project will allow its customers to develop and perfect their programs. For students who interact with coding for the first time, coding is like learning a new language. This barrier with computer science causes students to give up easily. Not only beginners, but also veterans and students without solid foundation face difficulties when they return from a break from coding. For those students, this project reaches out in a clear and friendly way.

The Educational IDE contains many features that are more beneficial than the standard programming environment. One of the benefits of this program is that it provides tutorials and questions on basic programming. The program will also interact with its users, providing feedback for improvements to maximize their learning and programming experience. In addition the program allows interactions between educators, peers, and students to receive and gives guidance on further improving their programming and coding.

There are numerous programming environment tools that are available to beginner and professional programmers. However, the Educational IDE is very different compared to existing programming environment tools. A crucial difference is its tutorial and practice exercise feature. After exercises and tutorials are finished, the Educational IDE will return score ratings for the users' programs and their syntax. This feature allows users' to understand their mistakes and how to make improvements.

Commercial Opportunity

Codingfolio is unique educational IDE in market. In the programming environment market, there are two different types of developing environment is exist today. The first one, is called an IDE (integrated development environment). Most Integrated development environments, such as Eclipse, Netbeans, and etc, gives too much assistance. A Student who is new to programming can't improve their coding skills. if people follow convenience, they can't maximize their learning and abilities. They will depend on convenience Integrated development environment. On the other hands, another programming environment, such as textpad, notepad, and etc, gives too little assistance. So student can't know how programming is working on. Also, there are few education IDEs are on market. However, they have so little features are built for children. This is the IDE markets present condition.

Most things in the world are developed with computer programming. If programmers just use existing Integrated development environments, they can't improve their own coding skills. For, a better future, the solution is Codingfolio. Codingfolio is special a IDE nobody has ever seen before. It will give huge effect on the IDE market. Codingfolio's target is beginning, intermediate, and advanced programmer. Three different levels of programmers can use the sharing system. This system can share

code with others. Also, others can leave a comment. Beginner can use 'Java' tutorial on Codingfolio. It has various questions. Intermediate, and advanced programmer can use this to review coding skills. Codingfolio is unique educational IDE for beginner, intermediate, and advanced programmer.

Eclipse, Netbean, and text-editor's user have no unique benefit. Thus, these programming environments cannot to be compared with Codingfolio. Also, educational IDEs, such as Alice have only simple education system. Codingfolio is based on a web page. In 2016, the amount of internet users increased much. A wide variety of programs are already web based. For example, microsoft word, powerpoint, and etc… People downloaded these before 10 years. However, people don't download and use web based program, such as google docs, google slide, and etc these days. The reason is you don't need to save your own files in your own computer, just save in your account. There are many educational-IDE that already existing. However, there are no websites, that looks like Codingfolio. In addition, Codingfolio has most powerful features that other Integrated development environments don't have.

There are many different types of developers exist. In web development, there are a few language must uses for web developing, which is HTML, CSS, and JavaScript. HTML gives basic web structure; CSS is for style to web document, and JavaScript gives functions. Most important part is backend. Java is the one of the best language in the world. Our tutorial language in Codingfolio is 'Java'. According to 'Daily Mail.com', Java is number 1 language in programming in the world. Ten millions are java developer in the world. Total number of websites now exceeds one billion. Also, It means, at least one billion people developed websites. Web develop is really easy to access, so many of people still try to learn web developing. At this point, they need to, want to learn Java correctly. Codingfolio is the solution for them.

On the other hands, Codingfolio still has some problems before becoming perfect educational-IDE. There are one billion website exist. So user can't find if they don't hear about it. Also, most of university teaches Java, C, and Python, but web language. Even one billion websites exist, if people don't know about Codingfolio, that is nothing. Codingfolio should have infrastructure to support students in university. Also, since only one person develops Codingfolio, needs many developers to protect program from another hacker and error. If not, it is impossible to grow up quickly.

If we ask question 'what popular website do you know?', most of people will say 'Google', 'Facebook', 'Youtube', and etc. One of their revenue is come from advertisement. They have so many different types of advertisement. For example, Google have search ads. According to Google, it says 'Search ads appear next to Google search results when people look for products and services you offer. And, you only pay when people click to visit your website or call your business.' Youtube offer video ads, and Facebook offer share ads to selected by locations, gender, ages. One of the options in Codingfolio is tutorial. So when user click tutorial button. It will directly connect to web based tutorial

site. We can track how many people visited own websites, if user visit a lot, we can have much more money. Also, we can use ads service, such as Admob on our tutorial system.

Societal Impact

Today, many people are interested in electronic. Most of people waited for Iphone release date, and use computer and smart phone most of time in a day. What do they do with phone or computer? Answer is internet. According to small survey, more than half of people want to try to develop own website. Then we could say, 'just do it'. However, they are worried about computer programming is so difficult. It is true, but we could say web develop, especially front-end is really easy to learn. In contrast, they don't know how much easy or hard front-end web developing is. Sharing system in Codingfolio, we can add tutor for student too. Also, we can approach to people who don't know about programming, if use our tutorial and sharing system in one month, they can build their own website. It is really fact. Web develop is really easy to get close to every people. In statistics, more than 10 millions people are developer. However, more than one billion websites are now exceeds. It is almost 100 multiply. It can show people who didn't learned programming from school or somewhere, can still develop website. This is why we choose language 'Java'.

Codingfolio has the potential to be the number one tool used in Integrated Development Environment, similar to the Microsoft word is used as the primary document software. The feature provided by Codingfolio can help to enable new students to quickly learn the programming they need to succeed to develop. In past, most of people think website is developed by only professional computer developer. However, it is not true. Any people who are really interested in develop own website, they can use Codingfolio to learn and develop own website quickly. Also, sharing system in Codingfolio can be a submission tools from school. Reason is, most of people use Google docs today, because it has share system, so user can share document with someone. Others can edit code, and leave a comment on document. So, some of class submit document by Google docs now. What if computer science class student submit assignment with Codingfolio. Teacher or professor can grade easily and student can get comment directly.

Codingfolio targeting is every people who is interested in web develop. Among them, computer science students, teacher, junior programmers, and senior programmers are real target for Codingfolio. They need to learn programming, and they use Integrated development environment. They will need to solve various questions to develop coding various way. Codingfolio tutorial have so many different questions and it can score the code. Also, programmer want to, and need share their code sometimes. One of the way is using Github. They can upload their each code to share. However, it seems like just

coding storage. They really need some share system looks like Google docs. Codingfolio is only the way they can share code with others.

As it is the working with computer, it will spend electricity. For save our world electricity, Codingfolio must have every features with light program. Then it can save electricity. Many of children uses computer, and they start to learn programming early these days. Watch computer long time is really bad for eyes. So it can be harmful for children. So the way to reduce harmful is color, because so many colors effect our eyes differently.

Codingfolio will takes security seriously. So we will store programmers' data, but as they are our software user. We have responsibility to protect programmers' data. Also, our sharing system is not for public. Only person can share with who he/she choosed. So this code will not open to public. In addition, we will not look up their code, if there are damage occurs.

Codingfolio has potential to make huge impact all of the world. Codingfolio is for every people, especially developer. As we mentioned above, it will never open to public. It can only share with person user selected. Also, it will use only people who really interested in computer developing.

Technical Discussion and R&D Plan

key technical challenges and risks

Codingfolio will have so many technical challenge. The first challenge is storing 'input = question text = solution of code'. Codingfolio's tutorial is not same as normal tutorials are already existing. The user can input what he/she want to study about. For example, if user want to study about 'for statement with addition', user just put 'for, addition' on input box. A question should equal to solution of Codingfolio's code. Codingfolio need to store every input 'words' with question 'text' and solution of 'code'. The second challenge is 'how to compare solution of Codingfolio's codewith users' code'. Every programmer write code with their own style. No one can write same code like essay. If user

got code which is difference with Codingfolio's code, it can be wrong. Thus Codingfolio need to solve storing 'input = question text = solution of code' and compare Codingfolio's solution code with many differences user's code. If Codingfolio just release without these problem, there is no its own specialities.

Description of Innovation

Most coding tutorials, such as w3school, codecademy, codingbat, and etc, have only fixed questions. It means developer of those program made questions by topics, then user just solve questions by their order. However, users can input what they want to do in Codingfolio. For example, user can input "for, if, addition", then question will automatically generate about 'for statement, if statement, addition' in one questions. Also, each words have various questions. Thus, user can learn their weak part with many different questions.

Web based code editor with share is one of innovation, also. There are so many web based code editors are already existing, but those editors only can run and save as files in user's own computer. In contrast, Codingfolio provide to run and save in website. In addition, some of web pages are already have sharing code system, but they can't run file on sharing code system. A user can write comment, and edit only. In 2016, most people use every software in online. Downloadable program take own computer's storage. People moved to use non-online software to online software recently, such as microsoft word to google docs. There are no share code editor on online. However, in Coding folio have write comment, edit, and user can run friends' file directly in online.

Key phase I objectives

The key objectives for Phase I will be settled by clear algorithm, features, innovative, and program's perfection. Clear algorithm will make program faster and lighter. Algorithm is most important part in program. Most program are working depends on algorithm well. For example, if algorithm is really bad, the processing speed will take longer than clear algorithm. In Codingfolio, most important part in algorithm is Tutorial, because clear algorithm can figure when user input words, then it will make text among lots of different texts. After that selected text will have own solution. In addition, features is particularly important for Codingfolio. Codingfolio's feature can be innovation in educational-IDE. There are no similar IDE like Codingfolio. Finally program's perfection can have positive influence on Phase I. User can get mad when program has some error. So program should release when it is ready perfectly with spend lots of times to test program.

Critical technical milestones

Codingfolio have regular tutorial system for now. It is just based on tutorial for beginner. One months from today. It will have tutorial which is unique tutorial in the world. If Codingfolio launch with only tutorial, it won't have problem. Then I can update code editor, and share. However, for perfect program, Codingfolio need to release when every features are ready. Thus, code editor will be ready on March, 2017, and share system will be ready on April, 2017. Most important part after finish is testing, so Codingfolio will have 1 month testing. On May, 2017, Codingfolio can release online to meet every programmer in the world.

R&D plan

Codingfolio is an educational IDE (integrated development environment) that uses for developer's web based environment. It will have three different options; Java Tutorial, code editor, and share. First, tutorial helps to learn coding, tutorial have input area to get question what user want to. Second, code editor is development environment with web based. Finally share is developer can share their code with others.

1. Tutorial
   a. Auto generating Algorithm
      i. Research generating questions.
      ii. Algorithm for generate questions Automatically (ex. Input = pick one from many text = picked text's solution code)
      Due 12/18/16
   b. Make a questions
      i. Make different questions of each words.
      ii. Research questions from online.
      Due 12/21/16
   c. Implement algorithm to code
      i. Code to generate questions automatically
      Due 1/21/17
   d. Set up library
      i. Set library to store questions.
      Due 2/8/17
   e. Testing
      i. Test with every single features.

   ii. Input, output, check questions' diversity

  Due 2/13/17

2. Code editor

  a. Research

   i. Research how code editor works

   ii. How run code in online

  Due 2/18/17

  b. Pre-design

   i. Design basic shape of editor

  Due 2/22/17

  c. Algorithm

   i. Research algorithm

  Due 2/30/17

  d. Coding

   i. Code to develop editor

   ii. Interact classes.

  Due 3/10/17

  e. Design

   i. Design editor

  Due 3/14/17

3. Share

  a. Research

   i. Research 'google share'

   ii. Research feature of Github

  Due 3/20/17

  b. Algorithm

   i. Simple and fast Algorithm

   ii. Interaction algorithm

  Due 3/27/17

  c. Coding

   i. Code to develop sharing system.

  Due 4/10/17

  d. Design

   i. Design list of code

Due 4/14/17

4. Finalize
   a. Final code
   b. Final design
   c. Final test

Due 4/20/17

5. Launch

Due 5/1/17

Flow diagram