

T3044



TECHNOLOGY STUDENT ASSOCIATION®

SOFTWARE DEVELOPMENT

ORLANDO - FLORIDA

2017

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RESEARCH

Heading away from the fact that science and technology shape our future, we want to make a contribution to education. According to the survey* results, the most popular subject of late years is the computer science. Considering the mass of people interested in computer science enlarges directly proportional to the popularity, more problems come up and wait to be solved during the learning process. There are some aspects are worth to take a look at, in order to specify the problem that we are going to deal with.

First of all, the requirements for a code to be well written should be listed. Readability, modularity, expressivity and efficiency are the main concerns about a good program. Different techniques for readability exist, whereas expressivity and efficiency are more complicated and depend mainly on the programmer. Therefore modularity builds a bridge in between. A system's components may be separated via self-contained sequences of actions to be performed, as known as algorithms. In an attempt to achieve the most efficient written code, a programmer must acknowledge the working principle of algorithms. So that one can calculate the estimated run-time and necessary memory. Only then one gain the ability to optimize a code.

A nonignorable method for understanding how an algorithm works is called abstraction*, which is a technique for arranging complexity of computer systems. When it comes to the education process of programming, a big majority of students face problems, especially about abstraction. For instance, a few members of our chapter including us are preparing for the USA Computing Olympiad. In a given interview about how hard is it to learn and study programming, it is mentioned that programming class has a high rate of daunting mainly because of the inability of the comprehension the concept of abstraction.

As a conclusion, we decide to find an easier way of teaching in order to smooth over the adaptation period for abstract thinking.

1)<http://www.telegraph.co.uk/education/educationpicturegalleries/10643255/Student-life-top-ten-most-popular-subjects.html>
2)[https://en.wikipedia.org/wiki/Abstraction_\(software_engineering\)](https://en.wikipedia.org/wiki/Abstraction_(software_engineering))



TECHNOLOGY STUDENT ASSOCIATION PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
02/21/2017 1	Detect a problem Find a solution	16 days	EY NS	Brainstorming across the whole chapter Interviewing with relevant students
03/09/2017 2	Plan development cycle	110 min	EY	Determining of the language, libraries, framework to use
04/09/2017 3	Initial git commit	120 min	EY	
04/25/2017 4	Plan abstract layouts	70 min	EY	Adding Modules API
05/16/2017 5	Finish first iteration	95 min	EY NS	
05/28/2017 6	Packaging	40 min	EY	Arranging compatibility
Advisor signature _____				

TSA LEAP LEADERSHIP RESUME – TEAM EVENT

The resume must be typed using 11pt Arial or Calibri font. For more information about how to complete the resume, visit this link: (<http://www.tsaweb.org/LEAP-competition-engagement>)

TEAM IDENTIFICATION

Team ID: T3044

Competitive event: Software Development

Level: High School

LEADERSHIP EXPERIENCES (specific to a competitive event)

Enrolled a winter school for two weeks to master the computing languages. (Know)
Attended an informatics camp in Germany organized by a school network called MINT-Ec in order to learn to work with graphics and GitLab. (Know)
Made interviews and a survey to interact with students facing problems when they learn to program. (Do)

LEADERSHIP EXPERIENCES (connected to one or more of these categories: *Leadership Roles; Community Service/Volunteer Experiences; Leadership Development/Training; College/Career Planning*)

Leadership Development/Training

Attended LEAP workshop at the national TSA conference in Tennessee and at Bogazici University. (Know)
Encouraged other state members to attend trainings this year. (Do)

Leadership Roles

Presidents of computing club and science club. (Be)

TSA LEAP LEADERSHIP RESUME – TEAM EVENT

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TEAM IDENTIFICATION

Team ID: T3044

Competitive event: Coding

Level: High School

LEADERSHIP EXPERIENCES (specific to a competitive event)

Internship at an insurance company to learn how to work with databases (Be).

Membership of coding websites, where one can solve five problems given by the website in limited time every week and track self-evaluation with a success graph (Be).

Organized a local computing competition including a preparation camp for three days (Do).

LEADERSHIP EXPERIENCES (connected to one or more of these categories: *Leadership Roles; Community Service/Volunteer Experiences; Leadership Development/Training; College/Career Planning*)

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STUDENT COPYRIGHT CHECKLIST

(for students to complete and advisors to verify)

- 1) Does your solution to the competitive event integrate any music? YES ____ NO X

If NO, go to question 2.

If YES, is the music copyrighted? YES ____ NO ____

If YES, move to question 1A. If NO, move to question 1B.

1A) Have you asked for author permission to use the music in your solution and included that permission (letter/form) in your documentation? If YES, move to question 2. If NO, ask for permission (OR use royalty free/your own original music) and if permission is granted, include the permission in your documentation.

1B) Is the music royalty free, or did you create the music yourself? If YES, cite the royalty free music OR your original music properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any music into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of music is done so with proper permission and is cited correctly in the student's documentation.

- 2) Does your solution to the competitive event integrate any graphics? YES X NO ____

If NO, go to question 3.

If YES, is the graphic copyrighted, registered and/or trademarked? YES X NO ____

If YES, move to question 2A. If NO, move to question 2B.

2A) Have you asked for author permission to use the graphic in your solution and included that permission (letter/form) in your documentation? If YES, move to question 3. If NO, ask for permission (OR use royalty free/your own original graphic) and if permission is granted, include the permission in your documentation.

2B) Is the graphic royalty free, or did you create your own graphic? If YES, cite the royalty free graphic OR your own original graphic properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any graphics into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of graphics is done so with proper permission and is cited correctly in the student's documentation.

- 3) Does your solution to the competitive event use another's thoughts or research? YES X NO ____

If NO, this is the end of the checklist.

If YES, have you properly cited other's thoughts or research in your documentation? If YES, this is the end of the checklist.

If NO, properly cite the thoughts/research of others in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any thoughts/research of others into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of the thoughts/research of others is done so with proper permission and is cited correctly in the student's documentation.