

A. Computer Science After-School and Summer Program at Lehman High School

Lehman High School hosted a computer science and coding afterschool program.

The program was run collaboratively by Lehman College and Code/interactive, a proven leader in computer science education. It was an immersive program that focused on web development (HTML, CSS), programming (Scratch, JavaScript), and technology entrepreneurship. One of the goals of the program was to prepare students interested in this subject to take AP computer science courses in high school. An additional goal of the program was to prepare the students to study computer science at Lehman College as a College Now course (pending CUNY approval) offered through CUNY and taught by Code/Interactive.

The key to Lehman's method has been combining the resources of the university, Lehman high school, and Code/interactive. This approach has allowed us to give students technical training, but more importantly, the opportunity to learn through experience. During the program, a program manager from Code/Interactive led the students through several professional projects in which students produced websites, mobile applications, and business plans for technology products.



1. Program Plan/ Scope of Services

The College pursued the services of Contractor to develop a customized computer science and coding program (the "Program") for Lehman High School.

1.1 Program Specific Description

The Program provided training for Lehman High School students (the "Students") in grades 10 and 11.

The Program consists of 3 instructional units ("Instructional Units"), each lasting four weeks:

- Unit 1: Web Development (HTML, CSS)
- Unit 2: Programming (Scratch, JavaScript)
- Unit 3: Technology Entrepreneurship

The Students were assigned to one of three cohorts. Each cohort participated in an after-school session one (1) day per week over a period of twelve (12) weeks at Lehman High School, and the Students were expected to participate in two (2) of the four (4) all-day Saturday sessions per Instructional Unit.

The Teachers and Parents were invited to attend to the Saturday sessions, each held at CUNY on the Concourse, Innovation Lab ("COTC").

Accordingly, the Contractor offered after-school sessions three (3) days per week over twelve (12) weeks (4 weeks per Instructional Unit) and four (4) Saturday sessions per Instructional Unit.



Student Participation:

Contractor provided the Students with 12 weeks of instruction (the three, four week units described above) from December 2017 – March 2018. The after-school segment was two hours in length and scheduled from 3-5 p.m. The Saturday session was 6 hours in length and scheduled from 10am to 4pm.

Contractor planned the program so the Students will gain experience in employing computational practices, analyzing the impact of computing on their lives, designing and implementing creative solutions and artifacts, applying abstractions and models, analyzing their computational work and the work of others, connecting computation with other disciplines, communicating thought processes and results, and working effectively in teams.

Student Contact Hours:

- a) After School: 2 hours per week for each student after school for a total of 24 contact hours.
- b) Saturdays: 6 hours every other week for each student (every other Saturday) for 6 weeks for a total of 36 contract hours.
- c) 60 hours per student combined total contact hours.



1.2 Services Performed by the Contractor (the "Services")

Scope of Work extracted from the Contract.

(PERIOD 1) Staffing Recruitment and planning phase:

Within the first 4 weeks after the Effective Date:

- a) Hire two (2) full-time Program Managers, responsible for providing instruction on computer science courses on web development (HTML, CSS), programming (Scratch, JavaScript), and technology entrepreneurship. Proof of vetting process for Program Managers (e.g. resumes, references from prior assignments and background checks in accordance set forth by the standards of the New York City Department of Education) to be submitted to the University in advance of Contractor extending an offer.
- b) Prepare the course syllabus.
- c) Prepare the assignments materials
- d) Prepare templates and tools for Student's pre and post assessments rubrics and end of course satisfaction survey which shall cover areas such as: quality of the instructional materials, extent to which the course met its objectives, and instructor evaluation.
- e) Design and prepare the Students, Teachers and Parents recruitment campaign.



Deliverables:

Contractor shall submit all materials delineated in III.1. (a)-(e) for College's review and approval.

(PERIOD 2) Implementation of Student Recruitment:

Within the first 4 weeks of 2017-2018 Academic Years, Contractor shall close out the Student recruitment process. Contractor shall manage the Student recruitment process in its entirety with a goal of all students at Lehman High School to learn about the Program. Contractor shall recruit through class presentations and letters to parents, and employ specific diversity recruitment strategies, and a competitive application process to identify the students with a balance of gender, racial, and socioeconomic diversity. Contractor shall create a web link to the application form that Contractor and Lehman High School can use to advertise the Program to applicants. Contractor will also conduct a parent meeting before the beginning of the program to serve as an informational session where the parent/guardian will be provided with the necessary information to better understand the program in its entirety, how to best provide support to the student to ensure successful completion of the program and as a tool to recruit interested new parents/guardians to participate in the program. Contractor shall demonstrate that the recruitment of the appropriate number of individuals is fully executed by providing the materials below.



Deliverables:

Contractor shall submit the following deliverables for College's review and approval:

- a) Samples of marketing flyers proof of their distribution
- b) All Student applications including the approved student application
- c) Screenshots and links to the live application website
- d) Sign-in sheets from the parents/guardians and students meeting
- e) Meeting agenda
- f) Waivers/permission slips signed by Students' parents/guardians to allow them to participate in the Saturday portion of the Program at COTC.

(PERIODS 3, 4, 5) Program Academic Instruction Phase:

The following table is the overview of the program academic structure:

		1st day	2nd day	3rd day	Saturday
		Cohort 1	Cohort 2	Cohort 3	Varies
De de do Heira	Week 1	Group A	Group B	Group C	Group A,B
Period 3 - Unit 1: Web Development	Week 2	Group A	Group B	Group C	Group B,C
(HTML, CSS)	Week 3	Group A	Group B	Group C	Group A,B
(TTTVIE, CSS)	Week 4	Group A	Group B	Group C	Group B,C
	Week 5	Group A	Group B	Group C	Group A,B
Period 4 - Unit 2:	Week 6	Group A	Group B	Group C	Group B,C
Programming (Scratch, JavaScript)	Week 7	Group A	Group B	Group C	Group A,B
Javascripty	Week 8	Group A	Group B	Group C	Group B,C
Period 5 - Unit 3:	Week 9	Group A	Group B	Group C	Group A,B
	Week 10	Group A	Group B	Group C	Group B,C
Technology Entrepreneurship	Week 11	Group A	Group B	Group C	Group A,B
Linucpieneursnip	Week 12	Group A	Group B	Group C	Group B,C



Contractor is responsible for implementation of the following:

- a) Enrollment of Students in 3 Cohorts to follow the detailed program schedule/calendar.
- b) Instructional methods and learning models in computer science education throughout all components of the program.
- c) Support to Students with their assignments which shall include opportunities for Students to build and present projects during the program to demonstrate mastery of new concepts as they learn new objectives and skills.
- d) Portfolio management: Contractor shall lead Students to create several professional projects to add to their portfolios, including websites, mobile applications, and business plans for technology products.

Deliverables:

Contractor shall submit 3 monthly reports, one for each Unit as detailed in the table above. Each report shall include:

- a) Attendance sheets for Students, Parents and Teachers for the Unit.
- b) Projects and work samples from Students that illustrate the types of skills that Students are acquiring. Contractor shall evaluate the projects and work samples using a rubric that reflects the quality of the work.
- c) Rubric ratings on each instructional unit for each of the Students.



d) Monthly equipment inventory checklist listing the condition of devices

(PERIOD 6) End of course survey results:

Within 2 weeks and after successful completion of Program Academic Instruction Phase, Contractor will submit the end of course satisfaction survey and student's pre and post assessments. Contractor shall ask the Students to rate their knowledge, skills and dispositions for each Unit on a Likert scale that ranges from 1-5.

Deliverables:

Contractor shall submit for the College's review the Results of the end of course satisfaction survey and students' pre and post assessments for 60 students.

(PERIOD 7) Program Logistics Management:

Contractor is responsible for staff members' travel expenses however; Contractor shall not be responsible physical upkeep of the Lehman High School and COTC locations, except to the extent damage occurs during the course of the Program.

(PERIOD 7) Asset Management:

The Contractor is responsible for transporting program assets, materials and equipment including any consumable materials (notebooks, post it notes, etc.) between Lehman High School and COTC throughout the duration of the Program.

Contractor is responsible for signing University equipment (Chromebooks) in/out during after-school and Saturday sessions, securing a safe location for the hardware, following the University's Asset Management inventory procedures, including necessary



coordination with the University for tagging equipment. Contractor shall be responsible to return the Chromebooks to the College as per the initial inventory list, and at the close-out stage of the program.

Deliverables:

Contractor shall submit proof of handing over/return of tagged materials at the close-out stage of the program, which shall be independently confirmed by the College thereafter.

Payment Terms:

- a) Upon completion of any independently identifiable portion of the services and no sooner than the delivery dates listed below, Contractor shall contact the College and request confirmation of receipt of and satisfaction with such services "Acceptance". If the Contractor is advised that any services were unsatisfactory, then Contractor shall complete or re-perform such services until College is satisfied.
- b) Contractor shall submit invoices in triplicate to College's Accounts Payable Department at a time interval and in a format approved by the College, in no event more often than the payment schedule set forth below.
- c) Contractor shall provide sufficient and appropriate documentation with invoices. College reserves the right to request additional information at any time.
- d) Contractor shall not submit invoices to College to be paid for any goods or services until it has received approval from College.
- e) College will pay Contractor the contract price in accordance with amounts set forth in the payment schedule below for services rendered in accordance with the terms of the contract.



(PERIOD 1) Staffing Recruitment and planning phase:

Within the first 4 weeks of contract post award and upon successful completion of the services/deliverables identified in Section III.1 above, and upon receipt of College approval, the Contractor may invoice the College in an amount not to exceed \$12,800.

(PERIOD 2) Implementation of Student, Parent and Teacher Recruitment:

Within the first 4 weeks of 2017-2018 Academic Years and upon successful completion of the services/ deliverables identified in Section III.2, and upon receipt of University approval, the Contractor may invoice the University in an amount not to exceed \$12,800.

(PERIODS 3, 4, 5) Program Academic Instruction Phase:

Contractor shall prepare and submit monthly reports, one for each Unit that detail the deliverables described in Sections III.3 above, Contractor shall obtain University's approval and invoice in an amount not to exceed \$15,000/report. Total amount for this task is \$38,400.

(PERIODS 6) End of course survey results:

Within 2 weeks after successful completion of Program Academic Instruction Phase and upon successful completion of the services/deliverables described in Sections III.4 above, Contractor shall obtain University's approval and invoice in an amount not to exceed \$5,000.



(PERIODS 7) Remainder of Tasks (Program Logistics **Management and Asset Management):**

At the end of the Program after all other Services are completed, and after the University has independently verified that all University hardware in the care and control of the Contractor has been returned to the University, and upon receipt of University approval, the Contractor may invoice the University in an amount not to exceed \$30,000.

	Scope of work	Timeline	Fees
1,2	(PERIOD 1) Staffing Recruitment and planning phase	First 4 weeks of contract post award	\$12,800
3	(PERIOD 2) Implementation of Student, Parent and Teacher Recruitment	Prior to class start date (class start date to be jointly agreed upon, anticipated to begin in September 2017)	\$12,800
4	(PERIOD 3) Unit 1- Program Academic Instruction Phase, First monthly report	Upon completion of the after school 1st month	\$12,800
5	(PERIOD 4) Unit 2- Program Academic Instruction Phase, Second monthly report	Upon completion of the after school 2nd month	\$12,800



6	(PERIOD 5) Unit 3- Program Academic Instruction Phase, Third monthly report	Upon completion of the after school 3rd month	\$12,800
7	(PERIOD 6) End of course survey results	Upon completion of Period 6 deliverables	\$5,000
8	(PERIODS 7) Asset Management	Upon independent verification that all University hardware has been returned	\$30,000
	Total Budget		\$99,000

2. Code Interactive (Contractor) signed contract

See (Appendix A)

3. Contractor Deliverables

Examples and references to the contract's deliverables are demonstrated in this section.

3.1 Period one

Templates for Assignment Materials:

See (Appendix B)

Templates for Course Survey:

Course Satisfaction Survey

- 1 Strongly Agree
- 2 Agree
- 3 Neutral
- 4 Disagree



5 - Strongly Disagree

The instructor:

- Made me feel welcomed in the class
- Had classroom management
- o Informs students about how they are going to be graded on projects
- o Grades students by the standards the instructor explained to students
- Grades projects accurately but is willing to make corrections if errors occur
- o Returns feedback within a reasonable period of time
- Explains materials in response to questions
- Presented course material in an organized manner
- Seems interested in the subject matter
- o Responds to student's queries within a reasonable time period
- Had an appropriate amount of content/course material to the length of the course
- o Offers students help with problems in course or refers them elsewhere for help

Please rate your overall satisfaction with this course

- Very satisfied
- Satisfied
- Somewhat satisfied
- Not very satisfied
- Not very satisfied
- Very unhappy

What could be done to improve this course? Other Comments Survey ENDS



Course Syllabus:

See (Appendix C)

Templates for Rubric:

See (Appendix D)

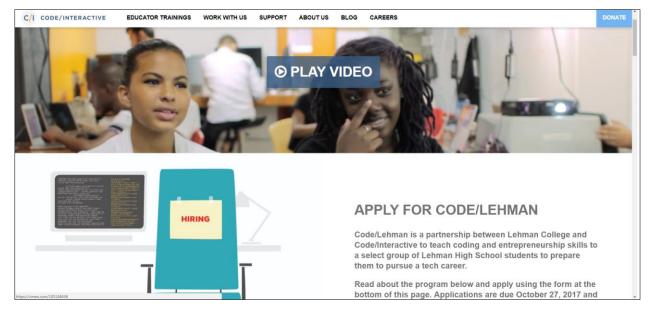
Hiring Document for Program Manager and Recommendation letters:

See (Appendix E)

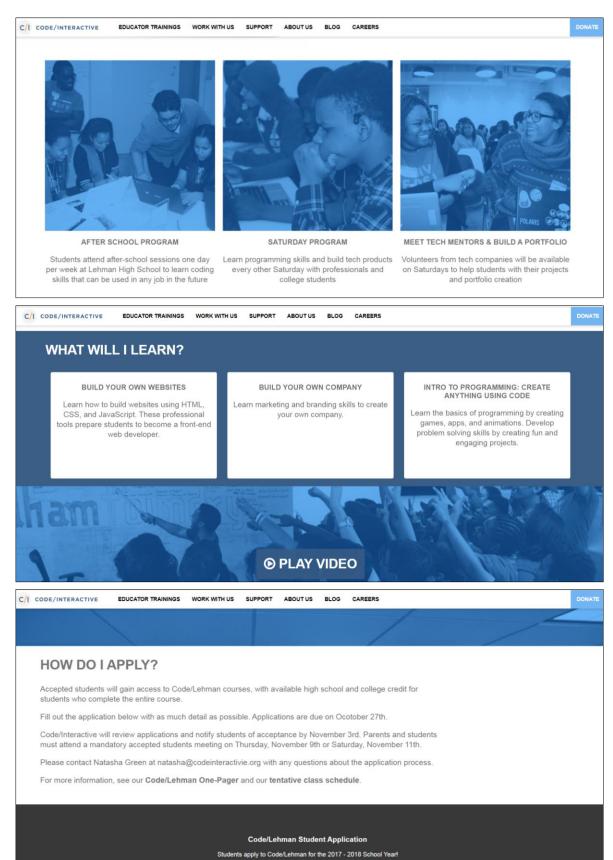
Students Recruitment Campaign:

Refer to the below link for the Recruitment Campaign website https://weare.ci/codelehman/

Here are few screenshots from the website:









	Code/Lehman St		and Vand	
Stu	dents apply to Code/Lehman	for the 2017 - 2018 Sci	iooi Year!	
Firet Name*				
and Married				
Laet Name*				
Emall Address*				
Cell Phone Number*				
Current Grade Level*				
Parent or Guardian Name*				
Parent or Guardian Email A	Aridrope*			
Parent or Guardian Cinan A	cuuloso-			
Teacher Recommendation				
Please list the name of a teache	r that we can contact for a recom	mendation		
Teacher Recommendation				
reaction recommendation	Chair Address			
Please list the email address of a	s teacher that we can contact for	a recommendation.		
Why do you want to Join C	ode/Lehman?*			
Please describe why way would	Join the program and what you	think you will get out of own	icipatino.	//
	rently involved in at school			
mar adamade are you cal	randy involved in action	. D. Carol Collows		
				//
SUBMIT				



Template for Student's Pre and Post Assessment Rubrics:

Short Rubric				
	Poor	Fair	Good	
Knowledge of Topic	Shows little or no knowledge of topic. Shown by an assessment score of lower than	Shows adequate knowledge of topic.	Shows interest and increased knowledge of topic.	
Notes:				
Motivation	Shows little or no motivation in assigned tasks.	Shows adequate motivation in assigned tasks.	Shows interest and increased motivation to complete assigned task	
Notes:	Notes:			



3.2 Period two

Marketing Flyers:

See (Appendix F)

Student Applications:

See (Appendix G)

Program Website:

https://codeinteractive.org/codelehman/

3.3. Period three, four and five:

Link to Students' works and print screens.

- Matthew Moscol
- https://codepen.io/mmos8941/pen/MraqYE

https://codepen.io/mmos8941/pen/mpKgJe

- o Navidra Basil
- https://codepen.io/BigDaddyNav/pen/dJKLNy
- Wilbert Medina

https://codepen.io/Wmedina04/pen/RxWYow

https://codepen.io/Wmedina04/pen/EobERK

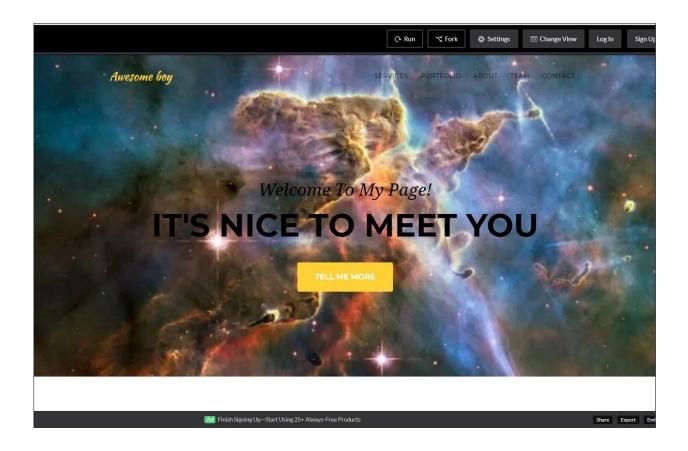
o Christopher Arturo Perez

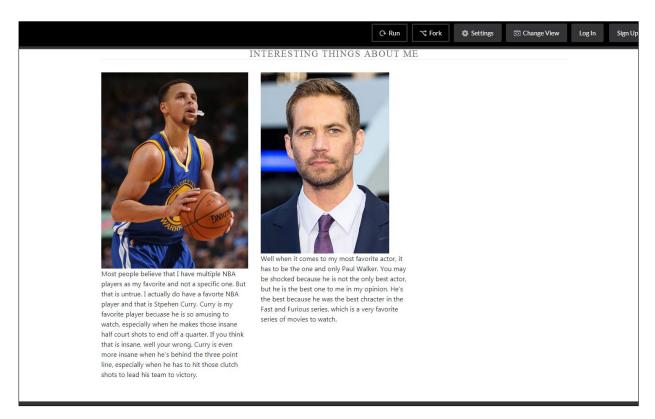
https://codepen.io/XChrisx12/#

o Alexa Nunez

https://codepen.io/ahlehxah/#















Links to Rubric ratings on each instructional unit for each of the students:

Rubric Topics	Low (1 point)	Medium (3 points)	High (5 points)
HTML Tags Accuracy	50% or fewer of the HTML tags are correctly functioning and showing up on the website with open and closing tags, correct bracketing, and	50-75% of the HTML tags are correctly functioning and showing up on the website with open and closing tags, correct bracketing, and	90-100% of the HTML tags are correctly functioning and showing up on the website with open and closing tags, correct bracketing, and

	correct spelling	correct spelling	correct spelling
CSS Tag Accuracy	50% or fewer of the CSS tags are correctly functioning and showing up on the website with open and closing tags, correct bracketing, and correct spelling	50-75% of the HTML tags are correctly functioning and showing up on the website with open and closing tags, correct bracketing, and correct spelling	90-100% of the HTML tags are correctly functioning and showing up on the website with open and closing tags, correct bracketing, and correct spelling
HTML Tags Added	1-3 HTML tags added to the project	4-7 HTML tags added to the project	8 or more HTML tags added to the project
CSS Tags Added	1-3 CSS tags added to the project	4-7 CSS tags added to the project	8 or more CSS tags added to the project
Text + Content	Text and content are inappropriate, incorrect, or poorly created for the topic assigned	Text and content are appropriate for the topic assigned	Text and content are well designed and demonstrate perfect spelling and grammar



Period 3

Students	Detailed Rubric Ratings	Total Rubric Rating
Christopher Arturo Perez	HTML Tags Accuracy: 5 CSS Tag Accuracy: 3 HTML Tags Added: 3 CSS Tags Added: 1 Text + Content: 5	17
Matthew Moscol	HTML Tags Accuracy: 1 CSS Tag Accuracy: 3 HTML Tags Added: 5 CSS Tags Added: 3 Text + Content: 1	13
Navidra Basil	HTML Tags Accuracy: 5 CSS Tag Accuracy: 5 HTML Tags Added: 5 CSS Tags Added: 5 Text + Content: 5	25
Wilbert Medina	HTML Tags Accuracy: 5 CSS Tag Accuracy: 5 HTML Tags Added: 3 CSS Tags Added: 3 Text + Content: 3	19
Zaher Choudhury	HTML Tags Accuracy: 5 CSS Tag Accuracy: 3	21
	HTML Tags Added: 5 CSS Tags Added: 3 Text + Content: 5	
Alexa Nunez	HTML Tags Accuracy: 5 CSS Tag Accuracy: 3 HTML Tags Added: 3 CSS Tags Added: 1 Text + Content: 5	17
Justin Oritz	HTML Tags Accuracy: 5 CSS Tag Accuracy: 3 HTML Tags Added: 5 CSS Tags Added: 3 Text + Content: 5	21
Yulisa Saavedra	HTML Tags Accuracy: 5 CSS Tag Accuracy: 3 HTML Tags Added: 3 CSS Tags Added: 1 Text + Content: 5	17



Period 4

Student	Detailed Rubric Ratings	Rubric Rating Unit 2 Bootstrap
Christopher Arturo Perez	Usage of Bootstrap's Column System: 5 Using Bootstrap's Components: 3 HTML Tags Accuracy: 5 CSS Tag Accuracy: 3 Text + Content: 1	17
Matthew Moscol	Usage of Bootstrap's Column System: 5 Using Bootstrap's Components: 3 HTML Tags Accuracy: 5 CSS Tag Accuracy: 5 Text + Content: 5	23
Navidra Basil	Usage of Bootstrap's Column System: 5 Using Bootstrap's Components: 3 HTML Tags Accuracy: 3 CSS Tag Accuracy: 5 Text + Content: 1	17

Wilbert Medina	Usage of Bootstrap's Column System: 3 Using Bootstrap's Components: 3 HTML Tags Accuracy: 3 CSS Tag Accuracy: 3 Text + Content: 1	13
Zaher Choudhury	Usage of Bootstrap's Column System: 5 Using Bootstrap's Components: 3 HTML Tags Accuracy: 5 CSS Tag Accuracy: 5 Text + Content: 1	19
Alexa Nunez	Usage of Bootstrap's Column System: 5 Using Bootstrap's Components: 3 HTML Tags Accuracy: 5 CSS Tag Accuracy: 3 Text + Content: 1	17
Justin Oritz	Usage of Bootstrap's Column System: 3 Using Bootstrap's Components: 3 HTML Tags Accuracy: 5 CSS Tag Accuracy: 5 Text + Content: 1	17
Yulisa Saavedra	Usage of Bootstrap's Column System: 5 Using Bootstrap's Components: 3 HTML Tags Accuracy: 5 CSS Tag Accuracy: 5 Text + Content: 1	19



Period 5

Student	Detailed Rubric Ratings	Rubric Rating Unit 3 JavaScript
Christopher Arturo Perez	Variables: 5 Functions: 3 Conditionals: 3 JavaScript Functionality: 1 Game Creativity: 5	17
Matthew Moscol	Variables: 3 Functions: 3 Conditionals: 3 JavaScript Functionality: 1 Game Creativity: 5	15
Navidra Basil	Variables: 5 Functions: 3 Conditionals: 5 JavaScript Functionality: 3 Game Creativity: 5	21
Wilbert Medina	Variables: 3 Functions: 5 Conditionals: 3 JavaScript Functionality: 1	17
	Game Creativity: 5	
Zaher Choudhury	Variables: 5 Functions: 5 Conditionals: 5 JavaScript Functionality: 5 Game Creativity: 5	25
Alexa Nunez	Variables: 5 Functions: 3 Conditionals: 5 JavaScript Functionality: 1 Game Creativity: 5	19
Justin Ortiz	Variables: 5 Functions: 5 Conditionals: 3 JavaScript Functionality: 1 Game Creativity: 5	19
Yulisa Saavedra	Variables: 3 Functions: 3 Conditionals: 1 JavaScript Functionality: 1 Game Creativity: 5	13



Template for Inventory Checklist:

Code/Lehman Inventory Checklist

Lehman High School Instructors: Jose Ortiz, Natasha Green

C/I Reporting By: Zuzanna Kobrzynski, Tom O'Connell

Check-In Month	Total # of Laptops	Condition of Laptops	Signature
December	30	# Poor: # Fair: # Good: # Excellent: 30	JL O'CU
January	30	# Poor: # Fair: # Good: # Excellent: 30	JL O'CU
February	30	# Poor: # Fair: # Good: # Excellent: 30	JL O'CU
March	30	# Poor: # Fair: # Good: # Excellent: 30	JL O'CU
Delivered to Lehman College Date:	30	# Poor: # Fair: # Good: # Excellent: 30	JL O'CU
3/26/2018			



4. Acquisitions

Using funding from the City Council students and instructors were given Chrombooks, Chrombooks carts to use to use in the classrooms.

Snacks and Metro Cards were also provided to the students throughout the training.

5. Training Calendar

See (Appendix H)

6. Students' Graduation

6.1 Students letters

See (Appendix I) for student letters to City Council.

6.2 End of class survey

See (Appendix J) for student end of class survey.

6.3 Photos and links to the video from the Graduation day.

Pictures and videos are contained inside of this Zip Folder inside of the Google Drive.



