

Purple Mai'a Foundation

98-820 Moanalua Road, #15-547 'Aiea, HI 96701 kokua@purplemaia.org

January 30, 2018

19th Hawai'i State Legislature

Subject: Support for HB 2607

Aloha e Legislators,

On behalf of Purple Mai'a Foundation, I am writing today in support of HB 2607 Relating to Education, a bill which would require computer science curricula in public schools, allow CS classes to count toward graduation credits and University of Hawai'i admission requirements, and would appropriate funding to the HIDOE to support the above changes.

Purple Mai'a is a nonprofit that has been working since 2013 to create access to empowering education in coding and computer science for Hawai'i's youth, especially those growing up in schools and communities where resources for CS learning are not available. We've seen first hand how Hawai'i's public schools are not not preparing students with the lucrative skills and knowledges provided by computer science that are important today and will be more important in the future as technology plays a bigger role in our lives. A statewide computer science curricula and counting CS toward graduation requirements are important first steps in making CS learning available to all students, no matter their background.

This improvement in access to CS education within the DOE dovetails with the work we are undertaking along with others to build an indigenous tech sector in Hawai'i. Hawai'i's future depends on building sectors that will supply jobs and economic growth while at the same time drawing on a cultural grounding that refuses to externalize the cost of production onto land and people. CS education is of central importance to growing such a tech sector in Hawai'i.

Me ka ha'aha'a,

Donavan Kealoha

Co-Founder and Chief Staff, Purple Mai'a

Submitted on: 2/12/2018 9:57:30 AM

Testimony for EDB on 2/14/2018 9:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jeselle Guillermo	Student at W.R. Farrington High School	Support	No

Comments:

I am a student and I attend Farrington High School. I had been coding for six months with an outside organization. I am in eleventh grade and coding has really spark my interest. However, I am only able to learn about it twice a week out of school. It would be better if computer science was a class was offered in school because more people would be able to attend and wouldn't have to travel far to do so. Computer science is a course that I was not exposed to in previous years and if I were exposed to it earlier I would be more proficient in it and given more of an opportunity to work in STEM jobs or careers. I hope that the future generations will get the chance to learn and exceed in computer science.

Submitted on: 2/12/2018 10:34:40 AM

Testimony for EDB on 2/14/2018 9:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Sumil Thapa	Individual	Support	No

Comments:

As a born and raised local resident of Hawaii who is working in the technology and innovation sector and who is invested in fostering a community that supports empowering Hawaii's youth with critical thinking skills through computer science, I would like to state my support for bills that aim to improve Hawaii's education in STEM fields. I believe that Hawaii is well situated to become a center for innovation as a technology validation hub. Whether in the area of renewable energy, agriculture, information system, or others, Hawaii can play a strong role that both boosts our State's economy and create meaningful progress for the country. Critical to achieving this is fostering a local community of technically minded innovators and fostering that mindset amongst our students as they go through schooling and figure out what they want to do with their life. Our students should have the opportunity to learn about the technologies that are affecting every part of our lives. They also should be empowered with the knowledge and skills needed to pursue and create the technology innovations that will lead us into the future. This bill furthers and support efforts within the State to make sure that Hawaii isn't left behind, but rather at the forefront of computer science and technology development.







February 12, 2018

Re: HB 2607, Strongly Support

Dear Committee Members,

Code.org and Women in Technology (Maui Economic Development Board) strongly support HB 2607. This bill allocates funding for computer science professional development for teachers, which is critical to ensuring that the state's schools have the capacity to offer courses in this subject. Further, the bill requests that the Department of Education develops a statewide computer science curricula plan and ensure that each public high school offers at least one computer science course in 2021-2022. The Department of Education has already established a team that is working to create opportunities for every K-12 student by 2022. Based on success in other states, we believe that this work, combined with the funding in the bill, will have immediate impact on access to high-quality computer science education.

Computing is a foundational skill for K-12 students. It develops students' computational and critical thinking skills and teaches them how to create—not just use—new technologies. Computer science is driving job growth and innovation in Hawaii and throughout the United States. More than half of projected jobs in STEM fields are in computing occupations, and computer science is one of the most in-demand degrees for new college graduates. According to the Conference Board, there are over 1,400 open computing jobs in the State of Hawaii, with an average salary salary of \$80,734. The policies encouraged by this bill would better prepare Hawaii's students for high paying, in-demand careers.

Further, only 16 schools in Hawaii (that's only 19% of Hawaii schools with AP programs) even offer an AP Computer Science course. Out of 290 exams taken in AP Computer Science last year, only 32% of those were taken by female students, 43 exams were taken by Hispanic of Latino students, 1 exam was taken by a Black student, and 12 exams were taken by Native Hawaiian or Pacific Islander students. We know that students who have access to these courses early on are more likely to choose to take the subject later on. And we also know that students who live in rural or urban areas are less likely to have access to computer science courses. No teachers graduated from a university in Hawaii last year prepared to teach computer science. This is why immediate dedicated funding for preparing existing teachers to offer these courses is critical. Our calculations estimate \$800,000 is needed to prepare one teacher in each school in the state (with the assumption that 25% of schools already have a teacher); we recommend \$500,000 in funding for this year to make a strong step towards this goal.

Thank you for your efforts in providing young people in Hawaii the education they need to be successful upon leaving the K-12 system. Code.org and Women in Technology support HB 2607, which will position Hawaii as a national leader in K-12 computer science education.

If you have any questions, please contact Katie Hendrickson at Katie@code.org, Cameron Wilson at Cameron@code.org, or Isla Young at (808) 875-2307. Thank you for your consideration of this matter.

Sincerely,

Cameron Wilson

VP for Government Affairs

Code.org

www.code.org

Isla Young

Director K12-STEM Education Women in Technology, MEDB

Kihei, Hawaii

www.medb.org

www.womenintechnology.com

www.stemworkshawaii.com



HOUSE COMMITTEE ON ECONOMIC DEVELOPMENT & BUSINESS

Rep. Cindy Evans, Chair Rep. Jarrett Keohokalole, Vice Chair

Rep. Daniel Holt Rep. Kyle T. Yamashita

Rep. Linda Ichiyama Rep. Lauren Kealohilani Matsumoto

Rep. Aaron Ling Johanson

Wednesday, February 14, 2018 at 9:30AM, Conference Room 309

In consideration of HB2607 HD1, Relating to Education

We support the Computer Science curricula plan to develop and implement a statewide program for students in K-12, permit students to fulfill some graduation requirements through computer science coursework, appropriates funds to the Department of Education and requires the University of Hawaii to permit applicants to fulfill certain admission requirements through computer science coursework.

DevLeague (http://www.devleague.com/) is the premier technical boot camp in the Pacific designed to provide mentorship and training to motivated individuals seeking a career change. We design our own curriculum based on relevant industry standards, teach in-demand technical skills such as JavaScript Web Engineer, Cyber Security Professional, Big Data Analyst and Enterprise Software Developer to help our adult students onboard with career starts into the software industry.

For the last 3.5 years, we have taught real-world software programming to middle and high school students. We started off with private schools such as Punahou School, Mid-Pacific Institute, Maryknoll School and Hawaii Baptist Academy where we created and honed our curriculum. Today, we are in these Hawaii DOE public schools with the following day-time, for credit courses:

School	Course	Year
Waipahu High School	Web Development I	2016-2017
	Web Development II Capstone	2017-2018
	Cybersecurity	2017-2018
Kapolei Middle School	Web Development I	2017-2018
Kapolei High School	Cybersecurity	2017-2018
Roosevelt High School	Cybersecurity	2017-2018
Hawaii Technology Academy	Game Development I	2017 Fall
	Web Development I	2018 Spring
Campbell High School	Cybersecurity	2018 Spring



The private-public partnership funding for these DOE programs are paid for by the kind donations from Public School of Hawaii Foundation, Hawaii Children's Foundation and workforce training funds provided by Department of Labor and Industrial Relations Workforce Division. These funds are designed to kick-start the DOE coding programs, establish curriculum, train teachers and build college and career pathways for students in industry-focused academy-based schools. It's a start.

In summer 2017, we held a two-week intensive educator training program where five DOE teachers learned hands-on web development so that they could design their own curriculum to take back into their classroom. The teacher from Hawaii Technology Academy then taught web development to a classroom of students and also taught two more teachers web development so they too could teach more students.

From February to May, 2018, we are currently conducting a two-month online educator training program where six DOE teachers are learning hands-on basics of bringing coding into the classroom. The educators learn computational thinking concepts, coding fundamentals, and tools allowing educators to gain understanding and build confidence. By the end of the program, educators will be able to effectively teach and implement coding into their curriculum, and equip their students with a "can do" growth mindset. We created the online educator training program to enable neighbor island participation. One participant is located in Lihue, Kauai.

The ask: \$500,000 as recommended by Code.org. The biggest constraints now are more funding for schools and educator training in computer science. Now is the time to boldly invest in computer science at the K-12 level to build upon and continue the success of what we started so that every high school has a at least one computer science program and/or courses that fulfils the computer science credit. This serves multiple purposes:

- Exposes and engages students in STEM-related courses
- Fulfill graduation requirements through computer science coursework
- Enables college-bound students to fulfill a computer science credit
- Develops foundational skills for career-pathway students into IT apprenticeships and the entry-level technical workforce

Thank you for the opportunity to offer this testimony.

Mahalo!

Russel Cheng

Co-founder, Director

Fund C. HD-



david.miyashiro@hawaiikidscan.org hawaiikidscan.org David Miyashiro Executive Director

February 14, 2018

Committee on Economic Development and Business Rep. Cindy Evans, Chair Rep. Jarrett Keohokalole, Vice Chair

State Capitol 415 South Beretania Street Honolulu, HI 96813

Aloha Chair Evans, Vice Chair Keohokalole and Members of the Committee,

Founded in 2017, HawaiiKidsCAN is a nonprofit organization committed to ensuring that Hawaii has an excellent and equitable education system that reflects the true voices of our communities and, in turn, has a transformational impact on our children and our state. HawaiiKidsCAN is a branch of 50CAN: The 50-State Campaign for Achievement Now.

HawaiiKidsCAN is supporting HB 2607, HD1 to advance the momentum for greater equity and access to computer science (CS) learning opportunities.

- To help meet the increasing demand for K-12 CS teachers, Hawaii should enable all high schools to offer computer science professional development to teachers. This is a critical step toward increasing K-12 CS capacity while preservice CS preparation programs are being developed for future educators.
- CS and other science, technology, engineering and math (STEM) knowledge will become increasingly important as our diverse economy evolves. Between 2017 and 2027, STEM-related occupations are projected to grow by 8 percent in Hawaii, compared with just 4 percent for all other occupations. In particular, some of Hawaii's fasting growing occupations between 2014 and 2024 will require CS experience, including web development (26 percent growth), computer systems analysis (20 percent growth) and software development (18 percent growth). These and other Hawaii STEM jobs carry a median hourly wage of \$40.45, well over double the median hourly wage for all other jobs of \$19.64.3

[&]quot;ECS Vital Signs: STEM Demand Hawaii." Education Commission of the States. http://vitalsigns.ecs.org/state/Hawaii/demand

² Software development includes systems software and applications software. "Employment Projections for Industries and Occupations." August, 2016. *Hawaii Workforce Infonet*. https://www.hiwi.org/admin/gsipub/htmlarea/uploads/Long-TermProjections-2014-2024-State.pdf

^{3 &}quot;ECS Vital Signs: STEM Demand Hawaii." Education Commission of the States. http://vitalsigns.ecs.org/state/Hawaii/demand

- These new skills are becoming increasingly important as our economy changes, with reports suggesting that automation may eliminate a third of our nation's jobs by 2030.⁴
- Of the 14 public schools offering AP Computer Science courses, four received Title 1 funding in 2017-18, suggesting a shortage of courses available to low-income students. Increasing access to these courses, especially for underrepresented communities, will provide students with additional opportunities to discover the CS field and help eliminate the gender- and ethnicity-based inequities seen in the CS workforce.
- Of the 290 AP CS test takers in Hawaii in 2017, only 32 percent were female, highlighting the gender inequity in K-12 CS classes. Though this is a 70 percent increase from 2016 and a whopping 557 percent increase from 2007, female participation on AP CS exams still pales in comparison to male participation. Early exposure to CS can have a significant impact on eliminating the gender gap in the CS labor force. After participating in a hands-on introduction to coding through an *Hour of Code* event, female students are 10 percent more likely to say they like CS. Encouraging women to enroll in AP CS courses in high school can increase the likelihood that they will go on to major in CS in college. Nationally, high school students who take AP CS are twice as likely to try computer science in college and 6 times more likely to major in CS than those who take non-AP CS in high school. Women who learn CS in high school are 10 times more likely to study it in college.

The world around us is changing. We must embrace the challenge of providing our children with an education that keeps up with the world.

Mahalo,

David Miyashiro Founding Executive Director HawaiiKidsCAN

^{4 &}quot;Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation." Manyika, J. et al. *McKinsey Global Institute*. December 2017. https://goo.gl/GLShNP

⁶ "Title I Eligibility Data by Complex Area for School Year 2017-2018." *Hawaii State Department of Education*. http://www.hawaiipublicschools.org/DOE percent20Forms/TitleI17-18.pdf

^{6 &}quot;AP Program Participation and Performance State Report 2017." *CollegeBoard*. https://research.collegeboard.org/programs/ap/data/participation/ap-2017

The Hour of Code: Impact on Attitudes Towards and Self-Efficacy with Computer Science." Phillips, Rachel and Benjamin Brooks. January, 2017. Code.org. https://code.org/files/HourOfCodeImpactStudy_Jan2017.pdf

^{8 &}quot;AP Students in College: An Analysis of Five-Year Academic Careers" *College Board Research Report No. 2007-4.* Morgan, R. and John Kalric. http://research.collegeboard.org/sites/default/files/publications/2012/7/researchreport-2007-4-ap-students-college-analysis-five-year-academic-careers.pdf.



STATE OF HAWAII DEPARTMENT OF EDUCATION

P.O. BOX 2360 HONOLULU, HAWAI`I 96804

Date: 02/14/2018 **Time:** 09:30 AM **Location:** 309

Committee: House Economic Development &

Business

Department: Education

Person Testifying: Dr. Christina M. Kishimoto, Superintendent of Education

Title of Bill: HB 2607, HD1 RELATING TO EDUCATION.

Purpose of Bill: Requires the Department of Education (DOE) to develop and implement

a statewide computer science curricula plan for public school students in K-12 and ensure each public high school offers at least one computer science course each school year. Authorizes DOE to contract for computer science teacher development programs. Appropriates funds.

(HB2607 HD1)

Department's Position:

The Department of Education supports the intent of HB 2607 HD1.

Currently, the Department is developing a multi-year comprehensive action plan. This plan will identify K-12 curriculum, software, and technologies. To ensure equitable and expanded access to computer science learning opportunities for K-12 students by 2022, the Department is addressing the following eight deliverables:

- 1) Adoption of Computer Science Standards aligned to national efforts,
- 2) Development of single courses and pathway courses for maximum student access.
- 3) Identification of standards-based curricular resources,
- 4) Quality K-12 professional development in computer science including fellowships and externships for teachers.
- 5) A schedule of academic competitions in partnership with business, industry and government,
- 6) Expansion of regional and school-based student demonstrations,
- 7) Increased partnerships for access to meaningful internship and apprentice models, and
- 8) Improved career counseling and information sharing around current and emerging computer science related work and study opportunities in Hawaii.

Respectfully, the Department offers comment on the following proposals in this measure:

High School Course Offerings (page 3, lines 16-20 and page 4, lines 1-3): The Department currently offers Computer Science courses at 21 high schools. If a CS course is not offered by a high school, online options are available for students via the Department's E-School program.

Contracts for Professional Development (page 4, lines 4-20 and page 5, lines 1-15): The Department shall follow all procurement guidelines if professional development services are rendered from external agencies such as institutes of higher education and nationally recognized providers.

Thank you for this opportunity to provide testimony on HB 2607 HD1.

The Hawaii State Department of Education seeks to advance the goals of the Strategic Plan which is focused on student success, staff success, and successful systems of support. This is achieved through targeted work around three impact strategies: school design, student voice, and teacher collaboration. Detailed information is available at www.hawaiipublicschools.org.



February 13, 2018

Representative Cindy Evans, Chair Committee on Economic Development & Business

Re: House Bill 2607, HD1 Relating to Education

Hearing: Wednesday, February 14, 2018 at 9:30 a.m.

Conference Room: 309

Dear Chair Evans and Members of the House Committee on Economic Development & Business:

On behalf of Microsoft Corporation, I am writing in strong support for HB 2607, HD1, which if enacted, would greatly expand computer science education throughout the State and better equip Hawaii's students with the computing skills needed to thrive in the 21st century economy.

HB 2607, HD1 would make key improvements, including the development and implementation of statewide K-12 computer science curricula, permitting computer science courses to meet certain math and/or science graduation requirements, requiring the University of Hawaii to permit applicants to fulfill certain admission requirements through the completion of computer science coursework and by establishing a timeline to ensure that every public high school in the state offer at least one computer science course by the 2021-2022 school year. These changes will position the State to better prepare and strengthen the pipeline into many STEM and computing fields.

The importance of computer science to the economy of Hawaii and the United States cannot be overstated. Computing occupations are the number 1 source of all new wages across the country and make up more than two-thirds of all projected new jobs in the STEM fields. According to Code.org, there were 1,403 open computing jobs in the state of Hawaii, more than 4 times the average demand rate across the state, yet only 16 schools throughout the state offered an AP Computer Science course in the 2016-2017 school year. This bill will improve Hawaii students' ability to obtain the skills to flourish now and in the future.

Again, Microsoft is pleased to strongly support HB 2607, HD1 as it moves forward in the legislative process.

Sincerely,

Jonathan Noble Director, Government Affairs Microsoft Corporation Allyson Knox Director, Education Policy Microsoft Corporation February 13, 2018

Committee on Economic Development & Business Rep. Cindy Evans, Chair Rep. Jarrett Keohokalole, Vice Chair

State Capitol 415 South Beretania Street Honolulu, HI 96813

Aloha Chair Evans and Vice Chair Keohokalole,

My name is Aisha Heredia, I live in Manoa and am a former science and technology educator. I currently work for HawaiiKidsCAN and am proud to support HB 2607 HD1 to increase access to computer science learning opportunities in public schools.

The jobs of today are highly tech-based, and often working in virtual project teams with design-centered focuses. Computer science (CS) and information communication technologies (ICT) occupations are the #1 source of all new wages¹ in the U.S. Here in Hawai`i there are not enough skilled workers to fill the currently available CS and ICT positions. Often Hawai`i companies have to recruit skilled workers from other states and countries. Research shows²83 that something as simple as early exposure, starting in middle school, to CS can have a significant impact on eliminating the gender gap in students who go into the CS labor force.

I support HB2607 HD1, with a budget of \$500,000 because we need Title 1 schools to offer high-quality CS opportunities. We need girls and students of color to meaningfully engage in CS, and to do that we need funding for professional development in CS and information technology project-based learning. The future of Hawaii's STEM labor force depends on educational shifts of today, HB2607 HD1 will support a brighter economic future for everyone.

Mahalo, Aisha Heredia Former Tech Educator, now Community Outreach for HawaiiKidsCAN Honolulu, HI

¹ Computing occupations are now the #1 source of new waves in America, by Code.org, https://blog.code.org/post/144206906013/computing-occupations-are-now-the-1-source-of-new

²The State of K12-Computer Science, found on Code.Org, https://code.org/about/2016

³ Engaging Youth with STEM Professionals research, https://projects.ncsu.edu/meridian/winter2010/koch/print.html

Submitted on: 2/13/2018 8:41:45 AM

Testimony for EDB on 2/14/2018 9:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Justin Delos Reyes	Individual	Support	No

Comments:

My name is Justin Delos Reyes and I am in support of bill HB2607! I am a Computer Science Teacher at Campbell High School and believe the state needs to do more to address the apparent need of funding and support of Computer Science courses and accessibility for grades K-12. All anyone needs to do is reflect on the news and current career trends to see why this is a very important issue, from protecting your identity, your financial data, health data, education data, personal data, and even our democracy, to careers providing livable wages making \$50K to \$70K starting more than ever do we need Computer Scientist, Information Technologist, and CyberSecurity specialist. Hawaii is a unique place and we are at a crossroads where if done right we can provide a formidable work force in the CS fields providing livable wages to our own state citizens and doing our part to contribute to our national security. I have been visited in my AP Computer Science classrooms by decision makers in the DOE, business leaders, FBI, NSA, various branches of military personnel who have all been saying the same thing; what can we do to support, what can we do to get the word out, what can we do to get funding, what can we do? The need is now and it requires adequate support and funding please support bill HB2607 to provide Computer Science education and accessibility to all students in grades K-12!

Submitted on: 2/13/2018 9:25:20 AM

Testimony for EDB on 2/14/2018 9:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Melodie Aduja	OCC Legislative Priorities Committee	Support	No

Comments:

PRESENTATION OF THE

OAHU COUNTY COMMITTEE ON LEGISLATIVE PRIORITIES

DEMOCRATIC PARTY OF HAWAII

TO THE COMMITTEE ON ECONOMIC DEVELOPMENT & BUSINESS

THE HOUSE OF REPRESENTATIVES

TWENTY-NINTH LEGISLATURE

REGULAR SESSION OF 2018

Wednesday, February 14, 2018

9:30 a.m.

Hawaii State Capitol, Conference Room 309

RE: Testimony in Support of HB 2607 HD1, RELATING TO EDUCATION

To the Honorable Cindy Evans, Chair; the Honorable Jarrett Keohokalole, Vice-Chair and the Members of the Committee on Economic Development and Business:

Good morning, my name is Melodie Aduja. I serve as Chair of the Oahu County Committee ("OCC") Legislative Priorities Committee of the Democratic Party of Hawaii. Thank you for the opportunity to provide written testimony on House Bill No.2607 HD1 relating to Computer Science.

The OCC Legislative Priorities Committee is in favor of House Bill No. 2607 HD1 and supports its passage.

House Bill No.2607 HD1 is in accord with the Platform of the Democratic Party of Hawai'i ("DPH"), 2016, as it requires the Department of Education (DOE) to develop and implement a statewide computer science curricula plan for public school students in K-12 and ensure each public high school offers at least one computer science course each school year and it authorizes DOE to contract for computer science teacher development programs.

The DPH Platform states that "[w]e recognize that the responsible use and development of technology in all its manifestations offers immense potential for our community, government, including institutions of higher education and business sectors. We encourage synergistic research, development, commercialization and educational programs to promote technological proficiency and innovation. In particular, we support Science, Technology, Engineering and Math (STEM) initiatives in our public, private and charter schools as these prepare the next generation to address the needs of our state. We also support programs that facilitate incubator, i.e. start-up, opportunities for new and promising technologies, and encourage the local retention of our intellectual resources.(Platform of the DPH, P.3, Lines 149-156 (2016)).

Given that House Bill No. 2607 HD1 requires the Department of Education (DOE) to develop and implement a statewide computer science curricula plan for public school students in K-12 and ensure each public high school offers at least one computer science course each school year and authorizes DOE to contract for computer science teacher development programs, it is the position of the OCC Legislative Priorities Committee to support this measure.

Thank you very much for your kind consideration.

Sincerely yours,

/s/ Melodie Aduja

Melodie Aduja, Chair, OCC Legislative Priorities Committee

Email: legislativeprorities@gmail.com, Tel.: (808) 258-8889

Submitted on: 2/13/2018 11:07:04 AM

Testimony for EDB on 2/14/2018 9:30:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Megan Kawatachi	Individual	Support	No

Comments:

As a classroom teacher of 12 years and a school administrator of 8 years, I strongly support HB2607. My career has allowed me to work with and in private, DOE, and public charter schools, both here in Hawai'i and on the continent, and universally, schools are falling behind the curve in preparing students for a world that will require at least a basic understanding of computer science. These bills propose a comprehensive approach to addressing this deficit, from establishing standards and a K-12 scope and sequence and adjusting course credit appropriately to professional development for teachers. Encouraging teachers to be comfortable with the concepts of computer science is a critical place to start; many will be surprised how they are already using logic models and other analog examples of computer science thinking. Finally, finding, training, and supporting educators or professionals who can teach the more advanced content of computer science will be important for college and career readiness. HB2607 proposes necessary starting points for this movement into the future.