RESEARCH NOTE

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IBM Master the Mainframe Coding Competition Lures New Generation of Millennials to Big Iron

Audience

Academic institutions, Computer Science teachers, students, CEOs, CIOs, CTOs, VP of IT, software and application developers.

Relevance

The most recent data from the U.S. Bureau of Labor Statistics indicates there will be a 40% increase in computer-related occupations by 2020 with more than 2 million positions needing to be filled. Many of these positions will be in mainframe related jobs.

ITIC Position

The top-notch performance, reliability, scalability and security of IBM's System zEnterprise have made it a must-have for businesses worldwide. IBM mainframes are in use at 95% of Global 1000 accounts. The so-called "Silver Tsunami" – which refers to the current or imminent retirement of older mainframe IT workers - has created an enormous demand for skilled mainframe personnel in over three dozen job categories.

The Mainframe at 50: Teaching Students New Skills & Careers

IBM kicked off a two-day long 50th birthday bash for its mainframe systems in New York City with its inaugural "Master the Mainframe World Championship" coding contest with 43 regional winners representing 23 countries. By doing so, IBM sent a clear signal that not only is the mainframe here to stay but it's taking Big Blue and tens of thousands of students into the future.

IBM's Master the Mainframe World Championship match saw 43 regional winners representing over 20 countries square off to decide who has the best and fastest programming skills. The contestants were chosen from 20,000 IBM Master the Mainframe student competitors. Since March 10, these elite students worked remotely, receiving training from qualified zEnterprise instructors. The students spent a month sharpening their skills, learning about advanced development tools, and how mainframe platform supports IBM Cloud, Big Data & Analytics, Mobile and Security initiatives.

These are all pivotal emerging technology fields where IT, management and application developer skills are at a premium; some 95% of global enterprises use mainframes. Using their newly acquired coding skills, the competitors were tasked with building a business application on the mainframe.

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The 43 finalists were then tasked with building a mobile banking application. They showcased their specific application before a panel of judges that included vendor industry executives, IT administrators and computer science teachers. The judges next narrowed the field down to six finalists who hailed from India, Taiwan, South Africa, the United Kingdom and the U.S. before choosing three winners. Young-Siang Shih from Taiwan took first place followed by Rijnard von Tandor of South Africa in second place and Phillip Egli from the UK who took third prize. The three winners each received a fully loaded Lenovo laptop outfitted with a Suite of zEnterprise tools.

The 43 IBM Master the Mainframe 2014 World Championship finalists are among 68,000 college and high school students from six continents have participated in IBM's decade old "Master the Mainframe" coding contest. The competition has ignited interest in Big Blue's "Big Iron," while teaching a new generation of "millennial" students how to code and carve out lucrative career paths for themselves.

The Master the Mainframe match lets students gain experience, get first dibs at internships and access to IBM corporate job boards. It also provides businesses with a steady stream of talented newcomers to fill the burgeoning demand for Big Iron-related jobs in software development, datacenter management and security.

The competition is one component of IBM's overarching, ten-year, $10 million zEnterprise Academic Initiative which began in 2003 to re-invigorate interest in teaching mainframe-related college courses and to attract students to Big Blue's zEnterprise platform. Owing to the success of the coding match, IBM has extended and expanded its Academic Initiative. IBM launched the three-part, hands-on Master the Mainframe contest in 2005. No experience is necessary; college and high school students can compete multiple times. Big Blue hoped to get at least 100 student participants in the just inaugural competition. Instead, it drew 750 contestants," noted Don Resnik, IBM's Worldwide Academic Initiative and System z Skills Leader.

The 2013 contest ran from October through December 2013 and had over 5,400 entrants; the demand to participate in the 2014 coding contest has been so great that IBM has had to cap the number of entrants in several countries. "Students gain real-world skills while having fun. The contest introduces them to the vital role mainframes play in leading edge, emerging technologies like cloud, Big Data, analytics, mobility and security," Resnik said.

Miles Nosler, a self-described computer nerd bested 4,600 rivals to win the 2012 match, after overcoming his initial skepticism that the mainframe was an "antiquated technology." "I had lot of fun learning the IBM zEnterprise technology and figuring out the nerdy jokes like opening the pod bay doors," Nosler said. The win netted him a trip to IBM's NY headquarters where he picked up prizes including a tablet computer. He also had his pick of job offers; he chose a software engineering position working at Visa in his hometown of Austin, Texas.

Patricio Reynaga, a computer science major at West Texas A&M University says he "had no idea what a mainframe was" prior to the competition. He beat 3,500 contestants from 549 schools to win the 2010 IBM Master the Mainframe contest. Fidelity Systems hired him as an operating systems programmer immediately

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upon graduation. "I never imagined a mainframe career; they weren't something I learned in my usual computer classes," Reynaga said.

Jovanna Marquez, a junior at Lake Brantley High School in Florida when she first entered the competition, initially thought mainframes were "something out of the movie 'The Matrix'." Marquez, currently a college sophomore at the University of Central Florida in Orlando, said she's "fallen in love" with the mainframe as it allows her to create applications. She is prepping for a career working on Big Blue's high end enterprise systems. "The mainframe has opened my eyes to new career possibilities," she said.

Over a decade later, the Master the Mainframe contest is proving a win-win for businesses that are hungry for new technical, IT and developer talent, students entering the job market and IBM which continues to solidify and expand its stake in high end enterprise systems.

H. Paul Haiduk, Computer Science Program Coordinator, School of Engineering and Computer Science West Texas A&M University said that his students' participation in the Master the Mainframe match was "a natural extension" of classroom activities. "The competition fueled interest from companies like Fidelity Investments, IBM and CA Technologies to hire our graduates," Haiduk said. Student participation and positive feedback and hiring from businesses led WTAMU to develop a four course, Junior/Senior track in enterprise computing. "Mainframe technology holds the brightest career promise and opportunities for our graduates; 95% of Fortune 500 firms use mainframes," Haiduk noted, adding, "Our graduates enjoy the highest average starting salaries compared with all the other graduates from our university. They all have jobs at, or before, graduation."

Professor John Turchek, who heads the Computer Information Systems Department at Robert Morris University in Pittsburgh, Pennsylvania, concurred. He said the Master the Mainframe coding competition sparked renewed interest in mainframes. That in turn, led Robert Morris University – which had phased out mainframe courses in the 1990s - to add several undergraduate and graduate courses in IBM mainframe computing over the last several years. The University currently has 288 students accessing the mainframe and taking mainframe and related courses. "Overall enrollments in our Computer Science courses have increased by 31% over the last two years. And we have a 100% job placement rate for students pursuing mainframes as a career," Turchek said.

The popularity of IBM's Master the Mainframe contest isn't limited to colleges and universities. The coding contest has spread to high schools and even some middle schools. Seth Reichleson, a computer science teacher at Lake Brantley High School near Orlando, Florida, says that nearly 300 students – almost 10% of Lake Brantley HS's total student population - are enrolled in computer science classes and participate in voluntary twice weekly after-school practice sessions involving the IBM coding match. "We make computer science and mainframe coding fun, and we build students' resumes preparing them for fulltime careers," Reichleson said.

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Reichleson's students admirably also found a way to take their newfound knowledge and pay it forward. They assisted a group of low-functioning autistic spectrum students who have very limited verbal skills, in taking and completing the first level of the IBM coding match. "One of my students held the autistic student's hand the entire time he took Part 1 of the contest, "Reichleson said. "Many of these students don't verbalize that much and they also had to learn to type. When the autistic students completed Part 1 and earned their T-shirts they were so proud," he added.

Businesses Hire Master the Mainframe Contest Winners

The Master the Mainframe contest is also providential for corporations that use IBM mainframes.

"The mainframe talent pool was drying up. Many of our mainframe programmers and IT personnel had retired or switched jobs," observed a senior vice president at a global financial institution. This was problematic since the bank uses IBM mainframes to process over two trillion transactions daily across five production datacenters and three billion customer channels.

IBM's Academic Initiative and Master the Mainframe contest reversed the trend and inspired the bank to initiate its own mainframe analyst development program in 2009. The company utilizes IBM's job boards to recruit summer interns and hire several dozen full time employees to work on its mainframes in the U.S. and worldwide. "We're in the mainframe game to stay," the bank vice president said.

IBM continues to expand the competition beyond its current complement of over 1,000 colleges and universities worldwide. Demand among corporations in vertical markets like banking, finance and healthcare – traditional IBM bailiwicks – is driving the increased need for a skilled mainframe workforce. "We're working with 13 Chinese universities that are strategic to our customers, who represent all the major banks in China," Resnik said adding, "We've had great results."

This spring IBM expanded the Master the Mainframe contest to Puerto Rico and Africa. "We're just starting to build relationships with Africa. We'll start with banks and local universities in Kenya and South Africa with more to follow in 2015," Resnik said.

"IBM's Master the Mainframe contest puts me in the driver's seat. Students like me can power future innovations and be assured of a solid, stable career," Marquez concluded.

For IBM, the Master the Mainframe Contest is proof-positive that its evolving 50-year old mainframes are more than capable of teaching current and future generations of Millennials new tricks that will supply businesses with much needed IT management and developer skills.

For further information on IBM's Master the Mainframe Contest, the Master the Mainframe World Championship and the System z Academic Initiative visit: www.ibm.com/systems/z/masterthemainframe.

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