First Code：未來世界的語言
First Code: the language of future

當老公公老婆婆也習慣用WhatsApp與親友溝通，想阻截傳銷電話可下載一個名為「小熊來電」的程式，「美圖秀秀」可把原來只有專業攝影師或設計師才能駕馭的「執相」技術變成人人手到拿來……為我們帶來無限方便的流動應用程式不過出現於數年之間，卻已經成為與我們生活息息相關的工具。人類科技發展的下一步，不再局限於應用這些程式，而是自行設計。First Code Academy創辦人及CEO辛婥琳表示：「在不久的將來，我們在生活遇上任何不便或困難，大家不會再停留於考慮下載哪個App去解決問題，而是很自然地自行設計最適合自己的App來使用。」就是這種透視未來的視野，驅使在香港土生土長、曾在公開考試考獲九優的會考狀元、畢業於芝加哥大學經濟學系並馳騁於金融界的辛婥琳放棄高薪厚職，重返校園，於矽谷進修編寫程式的課程，並回港創辦教授八至十二歲小朋友編寫程式的First Code Academy。

When even grannies and grandpas get used to contacting friends and relatives through Whatsapp, when you can filter promotional phone calls with “Studiokuma”, when everybody is able to edit photos professionally through “Xiuxiu”... Although these convenient apps were only developed in the past years, they have already become indispensable items in our everyday lives. The next step in our technological development would go beyond using existing apps to designing our own ones. “Sooner or later, when we come across any difficulties, we’ll no longer consider which app to download, but design the app which suits us most,” said founder and CEO of First Code Academy Michelle Sun. It was such a vision that motivated Michelle, an HKCEE 9A achiever, graduate of the University of Chicago Booth School of Finance and high-flyer in the financial world, to leave her prestigious job and pursue computer programming at Silicon Valley. Now, she has returned to Hong Kong and founded the First Code Academy, a computer programming school for 8- to 12- year-old kids.

蘋果創辦人及前行政總裁喬布斯曾說過：「每個美國人也應該學習編寫電腦程式，因為它讓你學懂如何思考。」很多歐美國家，已開始把電腦程式班列入小學必修課程。辛婥琳表示，教孩子編寫程式，就像教導他們一種語言，我們學習英文、普通話及廣東話等，目的是為了跟世界各地的人溝通，而編寫程式與學習電腦語言也是溝通的一種，只是對象是電腦而已。「相信大家都同意普通話很重要，因為中國的人口很多，同樣地，現時電腦和手機的數量比人還要多，再加上生活上許多用品——簡單如恆溫器也會使用電腦操控，學習電腦語言就變得越來越重要。甚至有人形容，電腦程式語言將來會成為孩子的第二語言！」

辛婥琳大學畢業後，曾經任職股票分析員，工作上須留意科技股票，遂觀察到科技如何影響人類生活的每部分。「例如騰訊創造了WeChat，人人都使用它來通訊，更不用說Facebook了，我覺得科技真的能夠影響我們的生活習慣，以及人與人之間的溝通。我很有興趣學習編寫程式，從而知道科技產品的運作，到自己學懂了之後，我開始教導小朋友，發現他們這一代比我們更懂得寫程式，因為他們自小便接觸到平板電腦及電子遊戲等，科技的使用彷彿是他們天性的一部分。學語言要從小開始，學程式也是一樣。我們的學生有的由十二歲開始學寫程式，也有些是由八歲開始，他們的學習能力和速度沒有很大的分別。有時我會覺得，越小的孩子思想越開放，吸收能力更強。動機從來都是學習的重點，有些已步入青春期的學生覺得自己不精通數學，對自己的能力有懷疑，會有礙其進步，反而小學生會把學寫程式視為新的玩意，這樣的心態比資質更重要。」

電腦程式對於不少家長包括跟筆者在內，儼如外星文字，孩子如何可以在短時間內看得明白，繼而靈活應用出來？辛婥琳解釋：「其實學習電腦程式編碼並不像大家想像般困難，科技行業發展了一些工具，讓非專業人士都能簡易地編寫程式。在我任職軟體工程師時，編寫程式的方法猶如寫英文一般淺白，已經比五至十年前的語言淺易很多。現在我們使用的程式，更方便指頭小、打字慢的小朋友使用，非但不用打很多字，更可以像砌積木般，把『積木』拉到適當的程式框框處，以拼圖的形式寫程式。除了省卻打字，編寫時如遇上邏輯出錯，積木就不能拼合，同學馬上就知道程式不能運作，省卻完成大部分後才逐寸逐寸找錯處的麻煩。我們所有的學生，在第一課下課前都必定可以成功完成編寫一個完整的程式，並下載於手機帶回家給父母欣賞。」

只要學懂背後的原理，再發揮每個小朋友都具備的創意，就能編寫出令人一見難忘的程式。「年紀較小的孩子在創作時，會聯想到跟自己有關的遊戲，

“Everybody in this country should learn to program a computer... because it teaches you how to think,” remarked Steve Jobs, founder and former CEO of Apple. Today, many Western countries have started to make computer programming a compulsory subject in their elementary school curricula. Michelle thinks that teaching computer programming is just like teaching languages. We learn languages to communicate with people around the globe; likewise, we learn programming to communicate with the computer. “Many would say learning Putonghua is important because China has a large population. Meanwhile, there’re more computers and mobile phones than human beings in this world! Even popular items such as thermostats are computer-controlled. Learning programming language is getting more and more important. Some even hold that programming language would eventually become children’s second language!”

After graduation, Michelle joined a company as a stock analyst and one of her tasks was to observe the technology sector index. In those days, she witnessed how modern technology affected our everyday lives. “One of the most prominent examples is Tencent’s WeChat, which everybody uses for communication, not to mention the most popular Facebook. I think technology really has a great impact on our lives and interpersonal communication. I was interested in learning how technology works through studying computer programming. When I learned the stuff, I started to teach children and found that this generation knows programming better than mine. They have opportunities to get in touch with tablet PCs and computer games

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All Michelle’s students are able to write a complete program by the end of their first lesson, and have it downloaded to share with their family.

例如有學生特別喜歡企鵝，便設計了『虛擬寵物』App，把企鵝變成自己的『虛擬寵物』。」最令辛婥琳印象深刻的是由兩個十四歲男生共同設計的「Outfitter」程式：「他們外出用膳，經常會因為不知道如何打扮而導致遲到，於是就設計了名為『Outfitter』的、用來配搭衣服的App，只要分別拍攝衣櫃裏所有屬於上衣的衣服，以及不同款式的褲子，就可以把它們收進程式上的『虛擬衣櫃』裏，不但可以觀看，還可以拼圖，把不同的配搭儲存，甚至在Facebook上跟朋友分享，讓朋友給意見，下次外出用膳就知道要穿甚麼了。」

「另外有個同學家中有爸爸媽媽和四兄弟姊妹，要時刻清楚各人的行蹤並不容易，於是他就自創『Family Calendar』程式，各人不同的節目用顏色表示，為生活添上不少方便。這個App更完全解釋了自創程式的好處——雖然這個程式未必所有家庭都用得上，對他們卻大派用場。將來的世界也就是如此：個人、家庭或工作有甚麼需要，也可以自行編寫最適合的程式來解決問題。」

小朋友的能力的確不容忽視，以上提到的「Outfitter」和「Family Calendar」程式，早前入圍於美國麻省理工學院舉行的MIT App Inventor程式設計比賽。比賽不設年齡限制，年紀最小的入圍者十一歲，最年長的是一位六十歲的婆婆。麻省理工學院的評審團在數千份來自世界各地的參賽程式中嚴選二十位入圍者，香港的兩位代表年紀小小能夠躋身二十強，親身到波士頓介紹自己設計的程式及參加交流，實在是難得的經驗，更印證了年紀小小也能寫好程式的說法！

為了鼓勵女孩子在科技發展，早前辛婥琳特意開辦了一些只為女生而設的程式編寫課堂。
Michelle organized some girls-only computer programming courses as to encourage girls to develop in technology.

根據傳統思想，女生的「科技頭腦」好像總是比男生遜色，辛婥琳非但不同意，更矢志推翻有關想法，甚至開辦一些只為女生而設的程式編寫課堂。「我鼓勵女孩子在科技發展，以前參加的，也是一個只供女孩參加的訓練營。我聽聞其他訓練營男女比例可能是十九個男孩、一個女孩，這個情況在整個科技行業很常見，這樣會令很多女孩子有猶疑或不願意參加，因為學習模式和支援或有不同。我很慶幸自己當時有這個機會，我自小在女校念書，可以發展的興趣有限，傳統教育認為女孩子必須參與『較文靜』的活動，例如彈琴，但其實科技也有很多模範例子是女性，我因此希望能在這些女孩子年幼時，培養和鼓勵她們，寫程式不是『宅男』的專長，而且是與生活息息相關、饒富趣味及充滿創造力的。即使她們日後不喜歡，也有機會先作嘗試啊！」

~ 許芷茵

According to some traditional beliefs, girls tend to have less of a “technological mind” than boys. Michelle does not agree to this stereotype and is quite determined to overturn it. She organized some girls-only computer programming courses. “I encourage girls to develop in technology. It was a woman-only boot camp that I used to participate in. I have heard that boot camps organized by other parties often have a male-to-female ratio as high as 19:1. Such imbalance prevails in the tech industry, and this makes girls hesitate or reluctant to get into it because it implies a different mode of education and support. I’m glad that I had an opportunity to be in a woman-only boot camp. Growing up in a girls’ school, I found my hobby exposure quite limited. Traditional education expects girls to take part in more ‘gentle’ activities like piano playing. However, there are many female role models in the tech field. It is my hope to encourage girls to explore in computer programming from a young age. Writing computer programs is not the specialty of ‘nerdy boys’, but is connected to our everyday lives, fun, and thought-provoking! Even if some girls may not like programming in the end, they should at least be given a chance to try!”

~ Helena Hui

from a very young age. In fact, the use of technology is like their second nature. Computer language has to be learned when one is young, just like human languages. Some of our students start learning computer programming at the age of 12, while some others start as early as eight years old, but there appears to be no significant gap in their learning abilities and progress. Sometimes I think younger children may actually have the benefit of a more open mind, which gives them a greater capacity for absorption. Motivation has always been a vital issue in education. Some adolescents, thinking that they are not good at mathematics, would doubt whether they are capable in programming, but younger kids only see programming as a new game. Apparently, a positive mindset is more important than talent.”

Computer programming is like an alien language to many parents, including myself. How can children grasp it in a short while and apply it fluently? Michelle explained, “Learning programming codes is not as difficult as many may imagine. Tech companies have developed tools for non-professionals to write programs easily. While working as a software engineer, I found program writing as simple as writing English, as the programming language of today has become much simpler than that of five to ten years ago. The programs that we use today are more convenient for kids with small fingers and limited typing skills. Not only do they not have to type a lot, but like building wood blocks, they can drag the right ‘blocks’ into appropriate dialogue boxes like solving jigsaw puzzles. If there are logic errors in the algorithms, the building blocks won’t fit, and the learner will know immediately that the program can’t work this way. With such tools, students won’t need to check for programming errors line by line. All our students are able to write a complete program by the end of their first lesson, download the app that they have designed and share it with their family.”

By understanding the principles behind programming with a creative mind, every child is capable of writing impressive apps. “Younger children may associate writing apps with the things that they are familiar with. For instance, one of our students loves penguins and designed a virtual pet app featuring a virtual pet-penguin.” Michelle is most impressed by an app called “Outfitter”, which was designed by two 14-year-old boys. “The inspiration came from the fact that they often found themselves running late when eating out because they didn’t know what to wear. So they designed ‘Outfitter’, which has a virtual wardrobe that stores images of all the tops and pants taken by the user. Users can view the images, try to match different clothes, save different combinations of outfits and even ask for friends’ comments by sharing them through Facebook! With this, I am sure everyone will be able to dress well when eating out next time.”

“Another student of mine has five other family members. Thinking that it’s not easy to know where everyone is all the time, he designed ‘Family Calendar’. This app works by allowing different family members to mark their events on the same calendar with a different colour, which is a great convenience to their family. You may think it might not be useful for every family, but it is this very particular suitability to that family’s needs that illustrates the advantages of do-it-yourself apps. In the future, we can also write apps that best suit our personal, family or corporate needs.”

Children’s capabilities cannot be ignored. “Outfitter” and “Family Calendar” made it to the finalists’ round in the MIT App Inventor programming competition. No age limit was set for the competition. The youngest competitor was just 11 years old, and the eldest 60. From among thousands of competitors all over the world, the adjudicators only picked 20 finalists after careful considerations, so you know the two young kids from Hong Kong are something! Being invited to Boston to introduce their apps and exchange ideas with fellow competitors must have been a wonderful experience, and the recognition that it implied was best proof that the young can write great programs.

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