

Report of Placement Programme

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Programme Title: BEng (HONS) Major in Electronic & Information Engineering

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Mode: Sandwich

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Name of Company: The Hongkong and Shanghai Banking Corporation Limited
(HSBC)

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From 15th July 2013 to 31st July 2014, I finished a one year full-time industrial training programme in HSBC Technology and Services of Global Banking and Markets - Cash Equities HK as an Industrial Placement Trainee. I was a member in Equities Algorithm development team to do Java development and maintenance of a trading system. It is a meaningful and fruitful year because I improved my Java programming skills and also learnt business knowledge of trading strategies during this year. I had the great opportunities to experience the challenges of a technology driven business environment and placed with the area best suited to develop my individual skills and fulfill my personal aspirations by working with highly skilled professional developers on concrete project.

Overview

In HSBC GB&M Equities, I worked for a Cash Equities algorithmic trading platform, which currently supports global Equities trading with deployments over Europe and Asia operating from a global shared code base, so actually I was working in an international team which based in London, Hong Kong and India. My team has been separated into two areas of responsibility, which are Algorithmic and Smart DMA Trading and Tick Data. I mainly worked for Algorithmic Trading and Smart DMA team but also have a close relationship with Tick Data team. The Algorithmic Trading and Smart DMA team is using multi-threaded Java based systems to implement the algorithmic trading strategies and Smart DMA logic from HSBC. The Tick Data team provides real-time and historic data to support the Algorithmic Trading platform and other parts of the Equities business by using the vender supplied KDB Database deployed in London & Hong Kong. Therefore, ALGO team is in cooperation with KBD team closely and I gained experience from both team.

Duties

As a developer of the ALGO team, I need to work together with other developers to improve the Algorithmic Trading strategies and fulfill the requirements from business, implement the improvements to the existing trading system, and also improve the testing tools around the algorithmic trading platform including testing framework. The development cycle of my team is, firstly, the business reports the problem of the system, then my team will raise the improvement and make it into a task, after that, the task can be assigned to any developer. Once an assignee completed the code and finished the testing, then the code can be committed to the trunk. Finally, when the trunk gathers a list of tasks, then a new version of the system can be released. This is a connected process for the development and testing part which cannot be done separately. Therefore, the responsibilities for me and also other developers are design the tasks and do developments and implementations, run unit testing of the tasks, system testing and back-testing. Moreover, our team also provide 2nd line support of the Algorithmic Trading Platform and Smart DMA system.

Major Tasks Accomplished

Tasks of Cash Equities Algorithmic Trading System

ALGO-1457 – Technical. Retrieve Instrument's Bloomberg Code from Fidessa

ALGO-1667 – Asia. Enable Compliance Limit in all Asian markets

ALGO-1686 – Fix. Ensure the delay cancellation of outbound slice is only applied on market where no closing auction is supported

ALGO-1452 – Reject POV order split from Fidessa if participation is (less than or equal to) 0

ALGO-1442 – Technical. Print the name of KDB service when a delay on connection is logged

ALGO-1434 – Should not change strategy start / stop time if both of them are inside the lunch session

ALGO-1469 – Complete At Price. Ensure VWAP starts the Complete At logic when sufficient volume appears on the other side of the order book

ALGO-1577 – Technical. Zero tolerance to exception on application logs. Catch the empty VWAP trade plan in KdbIntoTheCloseTradePlanner

ALGO-1457 – Update certification config to get rid of VWAPSeries3Strategy, which is no longer supported

ALGO-1883 – Asia. User. Move Gerardo PABLO to dealer group in Portware

Student Project – ITCIF Sever Work Stream

Student Projects are prepared for student placement trainees in HSBC to develop in a more dynamic environment. I was formed in a group of 9 students from different departments to output an ease-of-access system design allowing employees to view restricted global sever information with authorized security access. The effect of the project would eradicate problems faced from the current dispersed sever inventory methods, and creating a centralized inventory to enhance data management effectiveness and efficiency. It is a long term project lasting for 9 months involving user requirement analysis, functional and technical design, program development and system test.

Learning Outcomes

The team that I was placed in integrates business and technical knowledge that deliver business solutions, while bringing me a lot of advantages to my learning both in professional and specific areas and my interpersonal skills.

In order to do the development of the Algorithmic Trading Platform and Smart DMA system, I had to learn the business knowledge of different trading strategies of equities starting from ground zero, which I was not familiar with as I am an engineering student. I have learnt the most used strategies in the HSBC algorithmic trading system, such as Volume Weighted Average Price (VWAP) strategy, Time Weighted Average Price (TWAP) strategy, Percentage Of Volume (POV) strategy etc. These strategies are different ways to slice a big order into multiple smaller orders and I need to understand their working principle before I look at the system code base.

After I accumulated a certain amount of the business knowledge, I could take a deep look of the system code base. I have learnt how to trace the code in a huge project by using handy IDE - Eclipse. Furthermore, in the progress of code chasing and developing, it has greatly strengthened my Java skills as well as built up a more solid understanding of program logistics by day-to-day work. Meanwhile, I got to realize the importance of making the source code traceable, manageable and well-formatted at the point of view of a group of developers, and learnt version control of a project with the aid of SVN subversion. Besides, I have learnt how to do testing by use different environment by using PuTTY and WinSCP to login on to an UAT server and release the new version on it, meanwhile I have learnt some useful Linux commands to dive into the severs. After that, I also got familiar with the GUI of the trading

system to send orders to test the changes. After I completed several tasks and the tasks were released, I got a better understanding of the whole work flow of my team development life-cycle.

I would like to thanks for our team nature, I received the benefits of gaining communication and interpersonal skills, thinking and problem solving skills. It is first time for me to work on a large project, which is important to have discussion and knowledge sharing within the team. I tried to balance with solving problems independently but also reach out with others and voice out the problems wisely with reasonable questions, this equipped me to be a fast-learner with self-learning attitude. I also learnt how to be a good team player, to be active, self-motivated and enthusiastic. Besides, I also improved my verbal communication skills, including well listening, written and understanding of English as I worked in an international team and I got a daily video conference (scrum) with UK and Indian teammates.

To conclude, the learning outcomes of this placement year are exceeding my expectation. The company offers a wide range of opportunities for me to broaden exposure to the organization and management structures of the company, the valuable international perspective and the connections with highly skilled professional, which will form a strong basis for my future career.

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