



SECP1513-02 TECHNOLOGY AND INFORMATION SYSTEM

Group 6

Industrial Talk:

- 1. Designing Success From Graphic Multimedia to Leading Projects**
- 2. Preparing for Entrepreneurship in IT**

Prepared for: Dr. Aryati binti Bakri

Speakers:



Encik Mohd Hakimi Iqmall
IT Officer of UTMDIGITAL



Encik Nik Mohd Habibullah
CEO of Micro Semiconductor Sdn. Bhd.

Group Members:

No.	Name	Matric No.
1.	Muhammad Al-Hakimi Haikal bin Romi Sabihin	A24CS0271
2.	Kalaitharan A/L Palanyvelu	A24CS0092
3.	Maxivianna binti Robert	A24CS0109
4.	Gwee Zi Ni	A24CS0078
5.	Tan Xin Tian	A24CS0198

Introduction

On 17 December 2024, during Week 11 of the first semester, an industry talk was held at N28, Faculty of Computing, for first-semester Data Engineering students. The talk aimed to provide valuable insights into the skills and knowledge required for success in the computer science field.

Two guest speakers were invited to cover key topics. The first speaker focused on meeting industry demands, while the second, delivered virtually via Webex, focused on preparing students for entrepreneurial skills. Students actively participated throughout the sessions, focusing on the key points that broadened their understanding of the tech industry's expectations.

By the end of the event, students gained valuable knowledge, information and practical strategies to help them enhance their skills and prepare for their future challenges in the industry.

Speakers' Experiences

The first talk was given by Encik Mohd Hakimi Iqmall, an alumnus of Universiti Teknologi Malaysia (UTM) where a Bachelor's degree in Computer Science for Graphics and Multimedia Software was pursued, with the title *Designing Success From Graphic Multimedia to Leading Projects*. In 2017, an internship was undertaken at ME-Tech Solution Sdn. Bhd. The development project of a ship simulator for Tentera Laut Diraja Malaysia (TLDM) was involved in by the speaker as a 3D modeler and animator. In 2018, a job was secured at Okakichi Sdn. Bhd. as a game programmer. The first project assigned at the company was the development of a game titled *Kingdom Ran*, where the responsibility for game animations was carried out. In 2019, a position on the research team for the Faculty of Computing in UTM was held. Contributions to UTM have been continued as an IT officer at UTMDigital. Notable projects include the Payroll 2.0 and the Sistem Saraan Perkhidmatan Awam (SSPA System).

The second talk was delivered by Encik Nik Habibullah bin Nik Mohd Nizam. Back when he was a third year student in UTM, a video montage for UTMLibrary was created. The speaker was actively involved in co-curriculars, which were said to be a dominant factor that shaped him as an entrepreneur. The entrepreneurial journey was kick-started with the founding of NI Solution, a company that provides a variety of services such as mobile app development, server and network solutions, and system development. This was followed by the establishment of Micro Semiconductor Sdn. Bhd. in 2013. The company thrives through the trends of Internet of Things (IoT). Products created by the company include *GetMe Hired* and *Dialysis Manager*. *GetMe Hired* is a Curriculum Vitae (CV) creation service that aims to assist clients in creating a CV and securing a job. Moreover, *Dialysis Manager* is an innovation to store and monitor patient records, which has already been implemented by several haemodialysis centres around Malaysia.

Basic Skill For Computer Science

There are several skills that should be mastered before starting a career. First of all, programming languages such as C++, C#, Python and Java are the fundamentals of Computer Science which is not only for developing a software or system, but also for debugging a system or software. If programming skills students are unable to be mastered well before graduation, a long time will be taken to identify and fix the issues or problems that exist in the program. Hence, mastering programming skills will make them able to have an excellent debugging system skill too. In addition, experting in development tools like Visual Studio Code (VS code) and Sublime ensure efficiency of the coding and debugging process. Further more, strong analytical and logical thinking skills are also significant to become a person who has expertise in technical skill. At the same time, development tools which also include version control are essential in the computer science related job too. For instance, mastering Github and GitLab to integrate the development environment and ensure integrity of the code by aiding developers tracking the change of the code and having better collaboration with their team (GitHub, 2024). Other than that, skill in mobile application development should be mastered which include cross platform development, User Interface of User Experience (UI or UX) design and Application Programming Interface (APIs). Having skill in cross platform development able to build apps for multiple platforms such as Flutter and React Native. UI or UX design focus on optimizing interface and user experience for mobile device as well as APIs integrate the interface with backend services. Some common tools that used are HyperText Markup Language which used for structuring web pages, Java Script which adding interactivity to web pages and Cascading Style Sheets which Styling web content. For designing part, mastering responsive design which make sure all of layout is adapting for different screen size as well as cross-browser compatibility ensure sites work on all browser. By integration of all of these skills well, a user-friendly and outstanding app can be developed.

Having skills of programming fundamental in algorithms, object-oriented programming and database structure are significant. Having skill in data structure refers to

data that is able to be managed and organized into structured collections for rapid search and retrieval. This skill includes tables, primary keys, schemas, constraints and so on. (Anthony S.Chow&Timothy Bucknall, 2012). Additionally,acquiring skills in data analytics including being able to apply the data virtualization tools . Apart from that, system frameworks such as .Net, React and Laravel should be mastered which absolutely bring benefits in software development (Rahul Awati&Ben Lutkevich, 2024) due to the predefined code that have existed able to accelerate development. System framework skills are able to be increased through interacting and engaging with external industries.

Besides that, having security awareness is also a basic skill in Computer Science. All the company has secret archives and confidential information, responsibility to prevent those contents from being protected is required. The security is frequently related with system network.In this skill,a firewall is applied to make sure the network security system is able to monitor traffic. Typically, encryption and virtual private networks act as a significant role in the security skills.Encryption protects all the data by encoding it while virtual private network secures remote connection.It also makes sure the program operated smoothly and safely. To expert in this skill, mastering tools such as SQL injection, Cross-Site Scripting , Cross-Site. Request Forgery are basic manners to be mastered. Security awareness skills can be improved through doing numerous research via various platforms and asking the guides from people who are professional or expert in the security awareness field.

Skills Required for Industry

The rapid growth of the technology industry necessitates the acquisition of a wide range of technical and managerial skills. Among the technical skills, proficiency in programming languages such as C++, Python, Java, and PHP is regarded as essential. Expertise in version control tools, including GitHub and GitLab, is also required. Development tools like Visual Studio and VS Code are considered critical for enhancing coding efficiency, while an understanding of database structures, such as tables, schemas, and primary keys, is deemed necessary for effective data management. Familiarity with frameworks such as .NET and Laravel, along with an awareness of cybersecurity issues, including SQL injection and cross-site scripting, is viewed as vital for the development of secure and robust systems.

In addition to technical competencies, strong analytical and logical thinking abilities are emphasized as crucial for problem-solving and system optimisation. A solid understanding of algorithms and data structures is prioritised to facilitate the design and debugging of reliable software solutions. However, it is recognized that contemporary industries demand more than technical expertise; managerial skills are equally significant. Effective communication is highlighted as essential for bridging the gap between stakeholders and developers, while risk management is identified as a key factor in addressing potential project challenges. Throughout the lifecycle of a project, the importance of documentation and reporting is underscored to ensure clarity and alignment among team members.

Besides that, a deep understanding of the needs of both the company and the industry is crucial for achieving professional success. Being skilled in analyzing market demand, evaluating the sustainability of the industry, and assessing market size is essential. This knowledge helps ensure that organizational strategies are designed to effectively tackle specific challenges and seize opportunities.

Working collaboratively in defined roles, such as Product Manager, Chief Technology Officer (CTO), or Data Analyst, is seen as key to reaching common goals. Effective communication, along with aligning individual efforts with broader business objectives, is vital for creating a unified and productive team atmosphere.

An Applicant Tracking System (ATS) (Wikipedia contributors, 2024, October 9) is a software application designed to assist organizations in managing their recruitment processes more efficiently. It streamlines various aspects of hiring, beginning with job posting, as it enables recruiters to distribute job listings to multiple job boards and company career pages simultaneously. Additionally, ATS provides standardized templates for job postings, which ensures consistency and saves time for recruiters. The system also facilitates the collection and organization of applicant information, categorizing candidates based on their background and experience. One of the most significant functions of an ATS is its ability to filter applicants according to specific criteria set by the hiring organization, ensuring that only the most suitable candidates are considered for the position.

Reflection: How you will be successful in computer science in the next four years?

TAN XIN TIAN (A24CS0198): Efforts will be made to learn multiple computer languages, and hard work will be applied to all subjects to achieve a CGPA of 4.0. Besides, the skills gained from coursework will be utilized to achieve success in computer science over the next four years. For example, a variety of technical and management skills have already been learned through this interesting industry talk. Success must be achieved by following the coursework step by step.

MUHAMMAD AL-HAKIMI HAIKAL BIN ROMI SABIHIN (A24CS0271): Efforts will be made to always stay updated with new technology and current issues in the tech world, ensuring that the demands of this industry can be learned and adapted to effectively. In academics, the focus will not only be placed on achieving a good CGPA, but practical skills will also be gained, projects will be participated in, and internships will be pursued to ensure that knowledge is applied to real-world scenarios.

KALAITHARAN A/L PALANYVELU (A24CS0092): To be successful in Computer Science over the next four years, a strong foundation in core concepts such as programming, algorithms, data structures, and databases will be prioritized during the early years of study. Practical projects and internships will be engaged in to apply theoretical computer problems to real-life scenarios. Additionally, a portfolio showcasing projects, certifications, and achievements will be developed to demonstrate skills to potential employers.

MAXIVIANNA BINTI ROBERT (A24CS0109): In the next four years, all kinds of technical skills will be obtained and theoretical knowledge about this particular field will be widened through hard work. In order to do so, many industrial talks will be attended to gather insights from the professionals. Besides, technology-based workshops will be actively participated in to gain experiences and master the relevant practical skills that can be implemented once the workforce environment is entered.

GWEE ZI NI (A24CS0078): Rapid technology changes make lifelong learning skills more and more essential and significant in lives. So, learning additional knowledge and keeping a lookout for the latest technology trend in these four years prevents from focusing on the knowledge during university period after graduation. Not only that, the management skills or the soft skills that are mentioned in this industry like communication skill and leadership and

team collaboration skills must be trained and practiced during the university period. In order to have these skills, involving in the leadership program or program that has to communicate with the other is significant.

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