SCHOOL OF COMPUTING
Faculty of Engineering

TECHNOLOGY AND INFORMATION SYSTEM

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Industrial Visit 2 – CICT UTM

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Introduction and Details of Visits

On 22nd October 2019, we had visited the Center of Information and Communication Technology(CICT) UTM which organized in gallerium level 2, Perpustakaan Sultanah Zanariah (PSZ) Universiti Teknologi Malaysia. This event started at 3.30pm. We were given time to visit the gallerium and get the information from the person in charge. All the information are regarding the history component related to computing as show in the Gallerium, PSZ. We had learned about the development of technology.

We realize that computing is any activity that uses computers to manage, process, and communicate information. It includes development of both hardware and software. Computing is a critical, integral component of modern industrial technology. Major computing disciplines include computer engineering, software engineering, computer science, information systems, and information technology.

Computer technology for developing areas is often through the donation of technology to developing areas. Many institutions, government, charitable, and for-profit organizations require technology development often involving hardware or software design, and the coordination of donors, distributors, and deployers. Technical development overlaps with the fields of technical training, maintenance and support.

The vision of Center of Information and Communication Technology(CICT) UTM is to be a digital university driver while its mission is Strengthening academia-centric service delivery through data driven digital ecosystem.

Figure: CICT UTM

Detailed Descriptions of the History Component

<u>**Process Camera**</u>

The camera process was manufactured by Hunter Penrose Ltd, a company which was based in the United Kingdom where thousands of these devices were sold worldwide in 1890 until 1962. This camera which was a gift from the Department of Survey and Mapping Malaysia (JUPEM) was used since the British colonial. This initial model is fully mechanical and it has been used to facilitate students in understandings the principles and procedure of photography production. It is a KLIMCH 'horizontal process camera' and was used in the Cartography Department, Faculty of Surveying during the early 1980s until the late 1990s. The students who undertook land surveying course drew map sketches on paper or tracing papers using technical pens to produce maps and graphics in a conventional methods.

This final drawing or manuscript is considered as a scientific document which can be used for various applications specifically in the planning and development of land or landfill. The result of the sketch is displayed onto a specific location which is the focal point of the camera lens. Plates and films containing terracotta contour images were processed to produce black- and-white maps or coloured maps. Printed topography maps were treated as 'CONFIDENTIAL' and 'LIMITED' and used only for teaching and learning purpose in the faculty. The application of this camera was ceased in early 2004 due to the advent of digital technology.

Figure: Process Camera

Mouse

A computer mouse (plural Mice or Mouses) is a hand-held pointing device that detects two-dimensional motion relative to a surface. This motion is typically translated into the motion of a pointer on a display, which allows a smooth control of the graphical user interface. The first public demonstration of a mouse controlling a computer system was in 1968. Originally wired to a computer, many modern mice are cordless, relying on short-range radio communication with the connected system. Mice originally used a ball rolling on a surface to detect motion, but modern mice often have optical sensors that have no moving parts. In addition to moving a cursor, computer mice have one or more buttons to allow operations such as selection of a menu item on a display. Mice often also feature other elements, such as touch surfaces and "wheels", which enable additional control and dimensional input.

Figure: Different kinds of computer mouse used in the library UTM from 1980s - present.

RAM & PROCESSOR

RAM :

Random-access memory (RAM) is a form of computer memory that can be read and changed in any order, typically used to store working data and machine code. A random-access memory device allows data items to be read or written in almost the same amount of time irrespective of the physical location of data inside the memory. In contrast, with other direct-access data storage media such as hard disks, CD-RWs, DVD-RWs and the older magnetic tapes and drum memory, the time required to read and write data items varies significantly depending on their physical locations on the recording medium, due to mechanical limitations such as media rotation speeds and arm movement. RAM contains multiplexing and demultiplexing circuitry, to connect the data lines to the addressed storage for reading or

writing the entry. Usually more than one bit of storage is accessed by the same address, and RAM devices often have multiple data lines and are said to be "8-bit" or "16-bit", etc. devices.

This type of RAM we found in PSZ: RAM PC 133, RAM 286

PROCESSOR:

A central processing unit (CPU) is also called a central processor or main processor, is the electronic circuitry within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logic, controlling, and input/output (I/O) operations specified by the instructions. The computer industry has used the term "central processing unit" at least since the early 1960s.Traditionally, the term "CPU" refers to a processor, more specifically to its processing unit and control unit (CU), distinguishing these core elements of a computer from external components such as main memory and I/O circuitry. The form, design, and implementation of CPUs have changed over the course of their history, but their fundamental operation remains almost unchanged. Principal components of a CPU include the arithmetic logic unit (ALU) that performs arithmetic and logic operations, processor registers that supply operands to the ALU and store the results of ALU operations, and a control unit that orchestrates the fetching (from memory) and execution of instructions by directing the coordinated operations of the ALU, registers and other components.

This type of processors we found in PSZ: INTEL PENTIUM II, INTEL PENTIUM III, INTEL CELERON, AMD PROCESSOR 488

Figure: Ram & Processor

HARD DISK & MOTHERBOARD

Hard Disk:

A hard disk drive (HDD), hard disk, hard drive, or fixed disk is an electro-mechanical data storage device that uses magnetic storage to store and retrieve digital information using one or more rigid rapidly rotating disks (platters) coated with magnetic material. The platters are paired with magnetic heads, usually arranged on a moving actuator arm, which read and write data to the platter surfaces. Data is accessed in a random-access manner, meaning that individual blocks of data can be stored or retrieved in any order and not only sequentially. HDDs are a type of non-volatile storage, retaining stored data even when powered off. Introduced by IBM in 1956, HDDs became the dominant secondary storage device for general-purpose computers by the early 1960s. Continuously improved, HDDs have maintained this position into the modern era of servers and personal computers. More than 224 companies have produced HDDs historically, though after extensive industry consolidation most units are manufactured by Seagate, Toshiba, and Western Digital. HDDs dominate the volume of storage produced (hexabites per year) for servers. Though production is growing slowly, sales revenues and unit shipments are declining because solid-state drives (SSDs) have higher data-transfer rates, higher areal storage density, better reliability and much lower latency and access times.

This type of processor that we found in PSZ : 5'' hard disk, 3'' floppy drive, 8'' floppy drive.

Motherboard:

The motherboard is a printed circuit board and foundation of a computer that is the biggest board in a computer chassis. It allocates power and allows communication to and between the CPU, RAM, and all other computer hardware components.

Figure: Hard disks and Motherboard

Microfiche Reader 'Micron 750 Model'

The microfiche Reader was used to read the content of a microfiche. It was a source of information in the form of a flat film sheet and contained text and images. The content of the microfiche film were read according to the order of the letters on the machine and the display could be expanded when needed. A total 500 titles of microfiche are available in UTM Library collection covering various sources such as journals, technical reports, proceedings, and other general references.

Figure: Microfiche Reader 'Microfiche 750 Model'

Microfilm Reader 'Allen Micro Model'

UTM Library first use this microfilm reader was around early 1980's and early 2000's. It's function was used for reading thesis content (text and images) which was stored in microfilms and displayed on the machine's screen. At the time, the online information development was very limited and it gave a impact to users reference approach. As such, microfilm become one of the main sources of information in UTM Library. The microfilm was important in the Library's collection because it can store a large amount of data with a small medium. Microforms are scaled-down reproductions of documents, typically either films or paper, made for the purposes of transmission, storage, reading, and printing. Microform images are commonly reduced to about one twenty-fifth of the original document size.

Figure: Microfilm Reader 'Allen Micro Model'

Microfilm Processor 'Kodak Prostar Model'

The 'Kodak Prostar II Processor' was used to cleanse the 16mm and 35mm sized microfilm of 'Recordak Micro-File' machine and the 'Zeutschel' microfilm camera machine. It also produced negative microfilms for UTM theses. It was capable of processing microfilms with a speed of up to 10 feet per minutes. Both the Prostar I Microfilm Processor and the Prostar II Microfilm Processor are quiet, compact and require minimal training and maintenance.

Figure: Microfilm Processor 'Kodak Prostar Model'

Kodak Prostar Replenisher Machine

The 'Kodak Prostar Replenisher' was used to mix two types of chemical compound which are namely 'Kodak Dveloper' and 'Kodak Fixer'. Then, the mixture was transferred into the 'Kodak Prostar II Processor' machine to be used during the microfilm washing process.

Figure: Kodak Prostar Replenisher Machine

Mainframe Tape Subsystem (Model : IBM 2025)

Mainframe is a type of computer that generally known for their large size, amount of storage, processing power and high level of reliability. They are primarily used by large organizations for storing high volume of data. In UTM, they were using Mainframe Tape Subsystem. During the year 1987 until 1995, it was used as 'back up' for mainframe system and information database of staffs and students as well as other university's information system. After the round shape was no longer in use, this model only used a square shape tape.

Figure: Mainframe Tape Subsystem (Model: IBM 2025)

IBM Personal Computer 300GL

The IBM Personal Computer 300GL being an all-inclusive and affordable computer. It helped increased the productivity and reduced the cost of ownership of UTM library. The transformation of system is taking place in the library constantly. Seemingly, technological

revolution of computer usage coincidences with system change and this was evident with the application of Dynix systems for 10 years.

Figure: IBM Personal Computer 300GL

<u>IBM P70 MODEL 6554-673</u>

In early 1998, the IBM P70 Model 6554-673 was used in UTM library to contribute to work performance. Library was liable of all modules databases, software operations and data accessibility. With its ability to support up to 16MB on disk storage, the computer system provided a performance improvement on desktop operation.

Figure: IBM P70 MODEL 6554-673

<u>IBM Personal System/2 Model 70 386</u>

The Personal System/2 Model 70 enhances the systems by offering a new level of performance in a desktop unit. The system is highlighted by the Micro Channel™ Architecture with a 16 or 20MHz 80386 32-bit microprocessor, high density memory technology, and a wide range of integrated features. With the capability of supporting up to 16MB of high speed real memory, 60MB (Model E61) or 120MB (Model 121) of disk storage, advanced graphics (VGA), and an optional 80387 Math Co-Processor, this system provides significant performance enhancements for desktop computer operations. It maintains compatibility with most existing software products for Personal Computer systems. In UTM,

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the computer , with its system supported the library significantly in performance improvement for desktop operation. It was also compatible with most software products available in UTM library.

Figure: **IBM Personal System/2 Model 70 386**

IBM Powerserver 550

During the 1990's technology, the IBM Powerserver 550 have outstanding performance with its fastest chip in the world. It was considered as an apt system for a medium-sized database at the time. In relation to the Library's technology, the application of the library management system on a 'freeze' terminal which operated on a Mainframe was seen as the starting point of the information technology evolution. It played a great impact on UTM Library's computer.

Figure: IBM Powerserver 550

Apple Macintosh Classic Computer

Apple Macintosh Classic is a personal computer designed, manufactured and sold by Apple Computer, Inc. from October 1990 to September 1992. It was first introduced in early January 1984 and it had been used in UTM library in 1990. It was equipped with a memory of 1MB of RAM and 2MB to 40MB of hard disk. The computer was used in the

UTM's library computer for work and simple calculations along with the Lotus 123 and word star.

Figure: **Apple Macintosh Classic Computer**

Magnetic Tape Unit (Model : IBM 3420)

A magnetic tape drive is a storage device that use magnetic tape as a medium for storage. It uses a long strip of narrow plastic film with tapes of thin magnetiseable coating. It is a device which records or perhaps plays back video and audio using magnetic tape, examples of which are tape recorders and video tape recorders. In UTM library, it was used as a 'back up' for the mainframe systems and information database of staff and students during the year 1976 until 2010. It also made the 'back up' for the other university's information as well. At first, the this model used a round shape tape before converting to square shape tape.

Figure: Magnetic Tape Unit (Model: IBM 3420)

Typewriters

1. IBM Typewriters
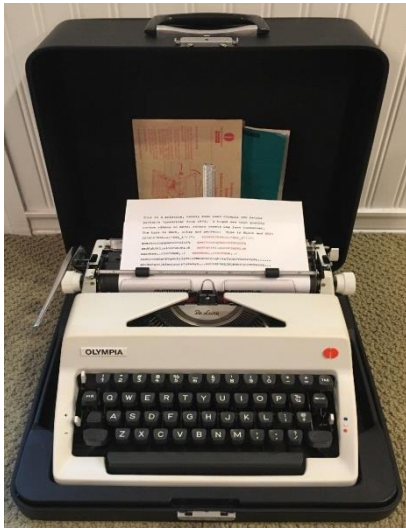
2. Olympia Typewriters: A German Original

3. Olivetti ET 116 Typewriters

These typewriters were used in the Library during 1970s until early 1980s. Before the application of computers in 1985, these apparatus were once used for administrative tasks such as printing letters and memos.

Slide Film & Slide Mounting 'Model Seary'

The 'Slide Mounting' is a tool used to produce frames for slide films. An edited film was placed into a special adhesive frame. Then, the frame will inserted into an electric brace and compressed at a specific heat for ten seconds until the frame was attached. There are total of 600 titles of slide films at UTM Library using a special projector machine tool.

Figure: Slide Film & Slide Mounting 'Model Seary'

Slide Projector

This slide projector was used in the Library to display slide shows during the 1970s until early 1990s. The function of slide is as a rotary tray to store slides, used to project slide photographs and to create slideshows. The projector body contains a motor which can rotate the plastic main body of the tray. Besides that, the metal plate is fixed with the opening over the projection gate. As the tray is advanced, a mechanism pushes the loaded slide back out into the tray. Then the tray is rotated, dropping the next slide into position between the light source and lens. This is how the slide projector work and display the picture on the screen.

Figure: Slide Projector

Microfilm Machine 'Recordak Model'

The 'Recordak Micro-File' machine was used to capture small images. The images were recorded into microfilms or microfiche. The 'Kodak Ektacrhrome' which was 35 mm in size, and with a capacity of 100 feet per fill roll is utilised for specific film. Early 1980's until around 2007, this machine was used in UTM Library. Microforms are reproductions of documents, typically either films or paper. This made for the purposes of transmission, storage, reading, and printing.

Figure: Microfilm Machine 'Recordak Model'

Block Hot Stamping

Hot stamping block was used in 1978 featuring UTM logo and previous motto 'Untuk Tuhan Dan Manusia'. Later, the motto on the logo has been changed to 'Kerana Tuhan Untuk Manusia'.The golden hot stamping logo is used for official documents or publications and can be seen clearly against buckroom-atype of cloth .By this, the golden hot stamping is used as book covers.
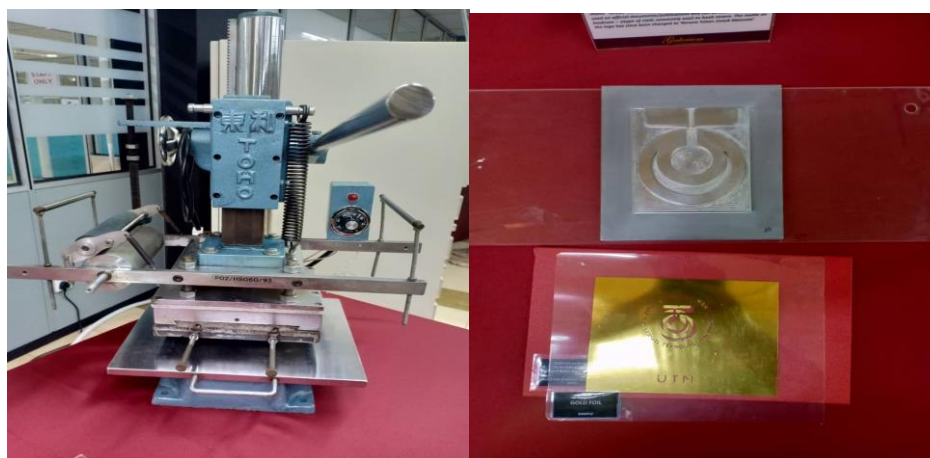

Figure: Block Hot Stamping

Impact Printer Model: IBM (4245)

During the 1990s until 2011 in UTM, the Impact Printer or Dot Matrix Printer was used. The Impact Printer or Dot Matrix Printer is a printing machine. It was used to print the data information of students and staff to meet the University's requirements. This printer have a capable of printing in high volumes and non-stop for 48 hours. To determine whether the 4245 printer can achieve the desired throughout for a given situation, it should be made on the basis of the speed of the desired printer model (Mdl D12 or D20) using the selected character set size (48, 64, etc.), and considerations of the output format for the document to be printed.

Figure: Impact Printer Model: IBM (4245)

Microfilm

A microfilm is a media item which was heavily used as a learning and reference medium in UTM back in the 1980's until early 2000.It used a 35 mm size film and was stored in boxes for easy storage. There are almost 15000 titles of microfilms in UTM Library collection from theses, international journals, acts, newspapers and etc. The Library's effort in carrying out microfilming process in the early 1980s until 2007 .Beside that, it focused on duplication of theses and research project. The initiative was carried out to preserve the security of the intellectual property of the University and too ensure this primary source of information. This microfilm collection is stored in an environmentally controlled storage at the Media Materials Room, UTM Library.

Figure: Microfilm

Time Control Device 'Gralab Model'

The 'Darkroom Timer' is a time control tool used in the darkroom. The time control process was carried out during the process of soaking the microfilms manually in the chemical mixture. This tool was needed to control the period of soaking in accordance with the procedure so it will not to affect the quality of microfilms. Minutes and seconds can easily be read across the room in total darkness. Then, the 60-minute time range can be set in minutes for developing and seconds for enlarger control. Two hands permit quick setting by seconds, minutes or combinations of seconds and minutes.

Figure: Time Control Device 'Gralab Model'

Microfilm Camera 'Zeutschel OK 102 Model'

A microfilm reader is a device used in projecting and magnifying images stored in microform to readable proportions. The function of 'Microfilm Camera Zeutschel OK 102' is a high accuracy camera used to photograph small images of UTM theses. The images were recorded into microfilms or microfiche. The'Kodak, and Ektachrome' which was 35mm in size, and with a capacity of 100 feet per film roll is utilised a special film. In 1986 until around 2007, this machine was first used in UTM Library.

Figure: Microfilm Camera 'Zeutschel OK 102 Model'

Movie Camera – Panasonic M 9000

This movie camera was used for Library media service to record Library programmes /activities during the 1990s until early 2000s.

Figure: Movie Camera – Panasonic M 9000

Multi TV-VCR Combination

During 1990s until early 2000s, this telecommunication medium was used for Library media service. This TV/VCR/DVD player combination has composite video and audio input to connect your camcorder or a video-game unit. Use its coaxial digital audio output to experience dynamic sound of digital stereo (feed the output to an amplifier with digital input). Enjoy the audio output through its headphone for personal listening.

Figure: Multi TV-VCR Combination

Dark Room Light 'Wotan Model'

The 'Darkroom Safelight' is a special light used during the film editing process in the darkroom. It was also used during the transferring of films from the box into the 'Kodak Prostar II Processor' machine. It has a very low lighting density as the quality of the film will be affected when exposed to ordinary light. A safelight usually consists of an ordinary light bulb in a housing closed off by a coloured filter, but sometimes a special light bulb or fluorescent tube with suitable filter material coated directly on the glass is used in an ordinary fixture.

Figure: Dark Room Light 'Wotan Model'

Image Magnifying Machine 'Dunco 67C Model'

It was first used in UTM Library around 1985 until 2007.The 'Film Enlarger' is a tool used to enlarge images so produce photo prints from negative films. It could be modified according to a preferred image size. The film magnifier was only used in the darkroom to prevent light from entering. One of the most significant features of the basic design is the use of double condensers in all versions, with the use of a diffuser plate on multi grade and colour grade, resulting in an increase in useful light and contrast.

Figure: Image Magnifying Machine 'Dunco 67C Model'

Film Copy Machine 'Extex 2101 Model'

The 'Silver Film Duplicator' was used to produce negative to positive microfilm copies. The microfilm negative copies served as references to user while the positive copies were stored in UTM Library special collection. The reason for this was to ensure that the master copy of each UTM thesis is preserved and traceable in UTM Library collection.

Figure: Film Copy Machine 'Extex 2101 Model'

Radial Line Plotter

This Radial Plotter was used at the Department of Photogrammetry, Faculty of Surveying during the 1960s to 1990s to produce topographic maps using a photogrammetry method. The students were exposed to mapping concepts and topographic mapping procedures using photographs as the main data source. This tool was us as the basic for photogrammetry principles and procedure in laboratories. Photograph with overlapped images were attached to this device and the creation of 3D images were displayed through a telescope.

Figure: Radial Line Plotter

PYE MODEL - CAMBRIDGE, ENGLAND' RADIO

This radio which was produced in the 1950s was used during the 1960s until 1970s in Technical College, Kuala Lumpur. It was used as one the medium of information dissemination and with the purpose of supporting the learning and teaching activities.

Reflections

a. What is your goal/dream with regard to your course/program?

Our goal in this course is to gain knowledge in order to develop tools that aid in the analysis of such data and to interpret the results accurately and meaningfully. We want to learn about the application of computational technology to handle the rapidly growing repository of information related to molecular biology, so that, we can be a good programmer in the future. We can make good use of our knowledge that we learned to benefit the society. This is because the advances in science and technology have made backward countries develop into advanced countries. We can make use of our knowledge to create new things that can bring convenience to people.
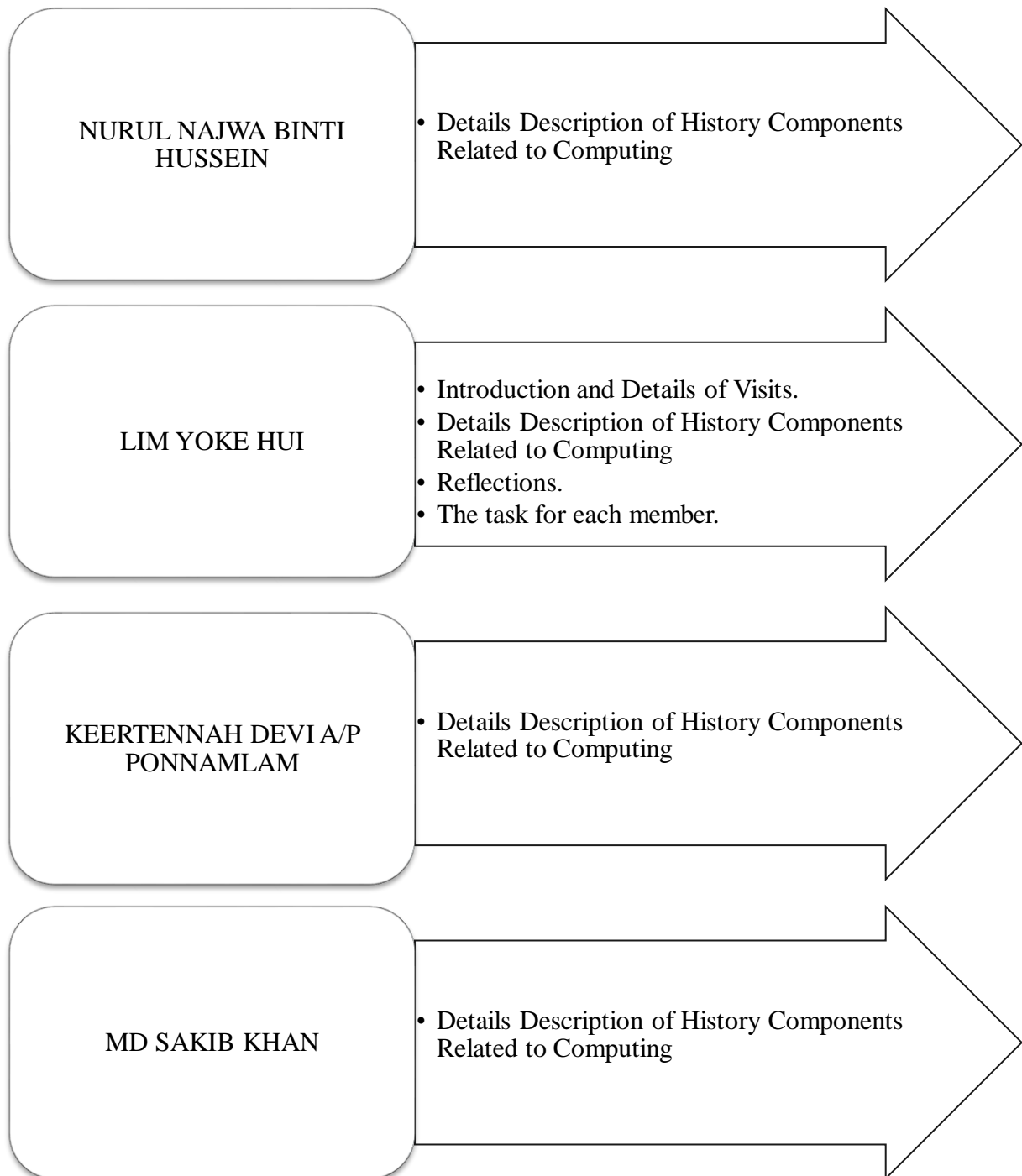
b. How does this visit impact on your goal/dream with regard to your program?

Through this visit, we had learned about the development of technology related to computer. Based on the information gained from this program, we can get know the history components that related to computers. The development of science and technology bring a lot of benefits to our society. It had inspires us to study hard in order to explore the new things in our life. We must have the spirit of courage to try and take risk to invent new technology that can make the complicated life become easier. We realize that we must always be curious about what had happen in our surrounding and think a solution to discover the problems.

c. What is the action/improvement/plan necessary for you to improve your potential in the industry?

In order to improve our potential in the industry, we must qualify ourselves with a lot of knowledge and information that regarding to the development of science and technology. Besides that, we must always curious and understand the needs of today's society. So, we can create the new thing that can fulfill the needs of people nowadays. We need to learn various types of skills that related to our industry. In this case, we are able to solve every obstacle that we meet in the industry. Last but not least, we must set a goal and create a plan to achieve them. It will always encourage us to work hard to archive our target in our life.

The Task for Each Member

| NURUL NAJWA BINTI HUSSEIN | • Details Description of History Components Related to Computing |

| LIM YOKE HUI | • Introduction and Details of Visits.
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• Reflections.
• The task for each member. |

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Reference

1. https://cict.utm.my

2. https://en.wikipedia.org/wiki/Computing

3. https://en.wikipedia.org/wiki/Computer_technology_for_developing_areas

4. http://www.computinghistory.org.uk/det/2586/IBM-PS-2-Model-70/

5. https://en.wikipedia.org/wiki/IBM_PC_Series#PC_300GL

6. https://www.techopedia.com/definition/24356/mainframe

7. https://en.wikipedia.org/wiki/Macintosh_Classic

8. https://www.techopedia.com/definition/8213/magnetic-tape-drive

9. https://www.google.com/search?q=Multi+TV-VCR+Combination&source=lnms&sa=X&ved=0ahUKEwi0nLLry9_lAhXFvo8KHcfUDiYQ_AUIDSgA&biw=1280&bih=610&dpr=1.5

10. https://en.wikipedia.org/wiki/Random-access_memory

11. https://www.ibm.com/ibm/history/exhibits/storage/storage_3420.html

12. https://en.wikipedia.org/wiki/Safelight

13. https://www.scribd.com/doc/76615458/Dark-Room-Equipment