What is the field of IS and IT ?

- **The field of IT is technology.**
- **The field of IS is concerned with technology and people so it has a broader focus than IT.**

Who are the people included in IS and IT ?

- **So IT includes technical staff like admins and engineers,**
- **IS includes “end users, managers and decision makers”**

What is the scale of IS ?

The scale of IS can range from supporting a local marketplace to enabling operations in a global marketplace.

What is symptom reporting, telehealth, and assessments in this case?

Symptom reporting: Elderly patients could use the app to record and report their symptoms (such as fever, cough, breathing difficulties, etc.) without having to physically visit a healthcare facility. This allowed doctors to monitor patients remotely.

Telehealth: This refers to the delivery of healthcare services through digital technology. In this case, doctors and healthcare workers could consult with patients through the app via phone calls, video calls, or messaging—providing medical advice and care from a distance rather than in-person visits.

Assessments: Healthcare providers could evaluate and assess the patients' health status through the app by reviewing their reported symptoms, vital signs, and other health data. They could then determine if someone needed further medical intervention or could be safely monitored at home.

In the case of the village of Pathanamthitta, in Kerala India, what was the information system ?
The information system is the mobile phone app.

What are telehealth workflows in this case ?

- Patient logs into the app and requests a consultation.
- The system schedules a telehealth session.
- Provider reviews reported symptoms before the call.
- Provider conducts a video/phone consultation.
- Provider records advice or prescriptions in the system.

What are the five components of Information system ?
hardware, software, data, people, and procedures.

What is hardware ?
It is the physical devices such as computers, servers, networks, and storage devices.

What is software ?
The programs and applications that run on the hardware,

What is data ?
They are the unprocessed raw facts and figures.

What is a procedure ?
A set of instructions or rules.

What are people?
They are end users who input and retrieve data in the system as well as the I.T professionals that design, develop and maintain the system.

Which staff in an organization use Executive Information Systems (EIS)?
Executive Information Systems (EIS) are used by an organization's executive staff.

Which staff in an organization use Decision Support Systems (DSS)?
Decision Support Systems are used by senior managers.

Which staff in an organization use Management Information Systems (MIS)?
Management Information Systems are used by middle managers.

Which staff in an organization use Transaction Processing Systems (TPS)?
Transaction Processing Systems are used by frontline workers.

What does an Executive Information System (EIS) support?
An Executive Information System (EIS) supports the strategic information needs of top executives.

What executive functions does an Executive Information System (EIS) support?
An EIS supports executive functions such as developing an organization's strategic goals and objectives and creating plans for achieving them. This includes providing the information needed for managers to understand and manage the organization's supply chain and value chain.

What does M.I.S provide middle managers with ?
M.I.S provides middle managers with reports and summaries to support decision making and managerial functions. The reports might be like budgeting documents and cash flow statements.

What type of transactions are handled by the TPS ?
The transactions handled by TPS are day-to-day transactions such as processing and payroll.

What are some examples of functions that an ERP system can be used for?

An ERP system can be used for:

- **Human resource management**
- **Project management**
- **Accounting and financial management (including payroll)**
- **Tracking customer service**

What is a Point of sale (POS) system?

The POS system is an information system that streamlines transactions, helping businesses track sales, manage inventory, and even understand customer preferences when tracked with tools such as customer loyalty cards.

Describe an example of how POS streamlines a transaction by telling what happens without the streamline process and with the streamline process?

Without a POS system (not streamlined):

- **Barista manually writes order on paper**
- **Calculates total price with a calculator**
- **Takes cash payment and counts change by hand**
- **Writes down what was sold in a notebook**
- **Later, someone has to manually count inventory and reconcile it with the recorded sales.**

With a POS system (streamlined):

- **Barista enters order into the system with a few taps**
- **System automatically calculates total, applies any discounts**
- **Processes payment (card, mobile pay, etc.) is made instantly**
- **System automatically updates inventory counts**
- **It tracks the sale in real-time for business analytics**
- **Records customer preferences if they use a loyalty card**

What is an example of a personalized customer experience?

Step 1: Regular habit:
Nadia visits her local coffee shop every morning and always orders a black coffee. The POS system records this as her usual choice through her loyalty card.
Step 2: Change in order One day:
Nadia decides to try a caramel macchiato instead. The POS system logs this new purchase.
Step 3: Preference update:
The system updates Nadia's profile: her "usual" drink is now marked as caramel macchiato.
Step 4: Personalized experience:
On her next visit, the cashier's screen shows: *"Nadia's last order: caramel macchiato."*
The barista can ask: *"Would you like your caramel macchiato again today?"* Nadia feels recognized and valued, because the system remembers her preference.

What is an example of how ERP works in the coffee shop ?

The Example: Synchronizing "Bean to Milk" Logistics

Instead of just tracking sales, the ERP acts as the central nervous system that coordinates separate vendors.

- **The Trigger: The shop experiences a rush on a popular blend (like the caramel macchiato mentioned in the text).**
- **The Conflict: This surge creates a complex demand: the shop needs more specific coffee beans *and* significantly more milk at the same time. These usually come from different suppliers with different delivery schedules.**
- **The ERP in Action: The ERP system integrates these disparate business processes. It looks at the sales trend and automatically synchronizes the bean procurement with the milk deliveries.**
- **The Specific Outcome: The system ensures the milk truck and the bean delivery arrive in coordination with the demand. This prevents the specific scenario where the shop has plenty of coffee beans but is forced to stop serving drinks because they ran out of milk (or vice versa), ensuring the "popular blend" remains available.**

In the coffee shop example, how the wifi represents an information system ?

The wifi represents an information systems, since it contains the five components which are

1. Hardware:

- **Wi-Fi router**
- **Modem**
- **Access points**
- **Customers' devices (phones, laptops)**

2. Software:

- **Router operating software (or firmware)**
- **Network management software**
- **Authentication software (login page)**
- **Bandwidth management software**

3. Data:

- **Customer login information**
- **Usage data (who's connected, how long)**
- **Bandwidth consumption**
- **Possibly email addresses collected at login**

4. People:

- **Customers using the Wi-Fi**
- **Coffee shop staff managing it**
- **IT person who maintains it**

5. Procedures:

- **Password policy (posted on wall or receipt)**
- **Time limits (some shops: "30 minutes free")**
- **Acceptable use rules (No illegal activity: e.g., downloading pirated movies, No excessive bandwidth hogging)**
- **Login process**

What are the technical jobs ?

Technical Jobs are roles that require in-depth knowledge of computers:

- **Software Developers: They design, create, and test the software applications needed to develop and maintain information systems.**
- **Cloud Computing Engineers: They guide and support organizations as they connect their systems to the cloud and use it to conduct business**

What is an example of a software developer that designs, creates and tests the software?

The Scenario: Building a "Check-Out" System for Books

Imagine a school library where the librarian is tired of writing down who borrowed which book on paper. A software developer is hired to build a computer program to handle this.

1. Design (The Blueprint)

Before writing any code, the developer plans what the system needs to do.

- **The Plan: They decide the system needs a "Student Database" (to store names) and a "Book Database" (to store titles).**
- **The Feature: The software has to actively listen for barcode input and student's ID card when scanning them takes place.**
- **The Logic: They decide the rule: "If a student has overdue books, the system should block them from borrowing a new one."**

2. Create (The Construction)

Now, the developer writes the instructions (code) for the computer to make the design real.

- **Writing Code: They type out the specific programming commands that tell the computer: *"When the librarian clicks 'Rent', check if the book is available. If yes, subtract 1 from the inventory and add it to the student's account"*.**
- **Building the Database: They create the digital lists where the information about the books and students will actually live.**

3. Test (The Inspection)

Finally, the developer checks if it actually works before giving it to the librarian.

- **Finding Bugs: They try to "break" the system on purpose. For example, they might try to check out a book to a student who already has one overdue book to see if the system stops them.**
- **Verifying: They check that when a book is returned, the system correctly updates the inventory from "0" back to "1".**

What are the less technical jobs?

Less Technical Jobs These options are for those who want a less technical role within the field:

- **Systems Analysts: They explore an organization's operations to identify areas where technology can be used to improve efficiency and cost-effectiveness.**
- **Information Systems Managers: They oversee the planning, implementation, and maintenance of information systems to ensure functionality aligns with organizational goals and objectives.**

Describe an example about system analysts using technology to improve efficiency?

The Scenario: The "Paper Clipboards" Problem

Imagine a mid-sized delivery company where drivers manually write down every package they load onto their trucks using pen and paper on a clipboard.

1. The Exploration (Identifying the Problem)

The Systems Analyst visits the loading dock to observe the "operations." They notice:

- **Inefficiency: It takes drivers 45 minutes every morning just to write down tracking numbers.**
- **Cost Issue: Because handwriting is hard to read, 5% of packages are delivered to the wrong address, costing the company money in refunds and re-shipping.**

2. The Proposal (Using Technology)

After analyzing this, the Systems Analyst proposes a solution: "Equip all drivers with handheld barcode scanners that instantly sync to the main dispatch computer."

3. The Result (Efficiency & Cost-Effectiveness)

- **Efficiency: Loading now takes 10 minutes instead of 45 (saving 35 minutes per driver, per day).**
- **Cost-Effectiveness: Scanning eliminates handwriting errors, so the company stops losing money on refunds for lost packages.**

How is the new method using handheld scanners quicker than using the old method?

Here is a simpler explanation of the two processes:

1. The Old (Slow) Manual Process: 45 Minutes

In the old system, the process would have required two separate, time-consuming steps for every package:

Step 1: Loading/Sorting (The Driver's Role)

- **The package arrives at the warehouse with a tracking number already printed on it.**
- **The driver goes to the section where their route's packages are piled.**
- **Action: The driver looks at the package and writes down the long tracking number onto a paper manifest or clipboard list.**
- **Problem: This takes time, and the driver might misread the number or write it sloppily.**

Step 2: Data Entry (The Clerk's Role)

- **After the truck is loaded, or at the end of the day, the driver hands their messy, handwritten list to an office clerk.**
- **Action: The clerk has to manually type every single number into the central computer system.**
- **Problem: This is where the biggest delays and errors happen. The clerk has to pause to read the driver's messy writing, correct mistakes, and enter all the data, which takes hours for all the drivers.**

This two-step process is why it took 45 minutes.

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2. The New (Fast) Scanning Process: 10 Minutes

The handheld scanner completely eliminates the second, error-prone data entry step, leading to the huge time saving:

The Combined Action

- **The driver goes to the packages for their route.**
- **Action: The driver points the handheld scanner at the barcode on the package and hears a "beep."**
- **Result: The scanner does three things instantly:**
    1. **It reads the tracking number perfectly.**
    2. **It sends the number directly (wirelessly) to the central computer.**
    3. **It confirms on the screen, "Package 1Z... is loaded for the North End Route."**

The entire process is streamlined: The driver's scanning action is the data entry action. There is no longer a separate person who has to sit and type the numbers later.

What was the dominant invention that promoted communication and information sharing before the telephone and the telegraph?
It was the printing press.

When was the basic design of the telephone established?
The basic design of the telephone was established by the end of 1800s

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When was the first call on a wireless cellular telephone made? And by who ?
It was made in 1973 by Martin Cooper, an engineer for Motorola.

What is the oldest known calculating tool ?
It is the abacus.

When can the abacus be traced back to?
It can be traced to at least 1100 BCE.

When analog and digital calculators were invented?
They were invented in the 1600s

When was the Jacquard loom invented?
The Jacquard loom was invented in the early 1800s.

When were the first fully functional computers developed by IBM?
They were developed in the 1940s by IBM.

When was ARPANET introduced?
ARPANET was introduced in 1969.

What is TCP/IP ?
It is a protocol that allows computers and devices to communicate over networks.

When was the TCP/IP developed and by who ?
It was developed in 1970s by Vinton Cerf and Robert Kahn

Who invented the World Wide web and when ?
The person who invented it is Tim Berners-Lee in 1990.

What was the Jacquard loom used for?
It was used to produce patterned cloth.

How large were early computers?
They were so large that some filled entire rooms.

When personal computers became available?
They became available in 1970s.

When laptop computers were introduced?
They were introduced in the early 1990s.

What are the categories that digital media falls into ?
The digital media falls into these categories:audio, video, social media, advertising, news, and literature.

What can you do with digital media?

Digital media enables students to take online classes, organizations to conduct global business, news outlets to research, write, and distribute stories worldwide, and individuals to have real-time conversations with people anywhere in the world. We can also use it to conduct transactions such as ordering takeout food from a local restaurant or streaming a movie.

When was it possible to post and share video online?
It was possible by the late 1990s.

How web 1.0 was characterized?
The websites were static where users could read their content but could not interact with it.

How web 2.0 was characterized?
It was characterized by enabling users to be active participants on the internet by contributing content such as comments, blogs, photographs, and videos.

What led to the growth of social media?

The transition to Web 2.0

What is social media?
Electronic communication tool that enables users to establish online communities where they share content.

When were Wikipedia, Facebook, YouTube, Reddit, Instagram, and TikTok launched?

Wikipedia was launched in 2001, Facebook in 2004, YouTube and Reddit in 2005, Instagram in 2010, and TikTok in 2016.

How Facebook started and what became later?

Facebook started as a way of connecting students at Harvard University and later evolved into the social networking service of today that provides users throughout the world with a means to communicate, connect, and share information.

What is Reddit?
It provides users with a means to upload a variety of content—including images, videos, and text posts—that other users could vote up or down.

What is Instagram?
It is a social networking service to share photos and videos.

What did the telegraph give to the people?

It gave them a means to transmit messages electronically over many miles, providing a way to interact socially without being face-to-face.

By early 2024, how many people were using social media?
By early 2024, approximately 5 billion people — roughly 60% of the world's population — were using social media.

What should we balance as emerging technologies like AI, ML, and blockchain continue to advance?
We should balance the ethical concerns they raise with the benefits they provide.

What enables software in a computer system?
It is hardware.

What are the two types of software?
The two types of software are : operating systems and applications.

What is the role of the operating system (OS) in a computer system?
The operating system functions as the computer's manager by operating its memory and other hardware resources such as disk storage.

What types of data can information include?
Information may include both quantitative and qualitative data.

What are examples of quantitative data?
Examples of quantitative data are Statistics, financial information, and marketing trends.

What is qualitative data in information systems, and what are some examples of it?
Qualitative data in information systems refers to nonnumerical information. Examples include customer names and addresses, photographs, videos, descriptive information, individual opinions, and other nonnumerical details required to meet system objectives.

What are the elements necessary for the information system?
The elements necessary for an information system to function are environment, input, processing, output, control, and feedback.

Why must the physical location of an information system containing sensitive information be secure?
To prevent unauthorized individuals from physically accessing the system and compromising its data.

What is the input?
The inputs are the data that are collected and entered into the system by users or automatically when transactions occur.

What is processing?
The performance of tasks in order to make data useful in a system.

What is a control?
A policy or procedure that ensures a system functions effectively, efficiently, and securely.

Into which two categories do controls in information systems typically fall?
Controls typically fall into application controls and general controls.

What is an application control in an information system?
An application control is a safeguard built directly into the system that helps protect data and processes.

What is a general control in an information system?
A general control refers to a process that outlines how an information system is to be used.

What is feedback in an information system?
Feedback is the information that users provide to managers about an information system's functionality. It is used to modify and improve the functionality of the system.

What do information systems operations refer to?
Information systems operations refer to how the system is used in practice.

What activities are included in information systems operations?
They include data capture, processing, storage, retrieval, and dissemination.

What is data capture?

Data capture is the process of gathering data from various sources such as customers and financial records, and inputting this data into the system.

What are examples of data processing in an information system?
Examples of data processing include adding the number of products sold during a month and calculating the profits earned from these sales.

What does "location" mean in information systems?

In information systems, *location* refers to both:

- **The specific computer hardware and software used to store and manage data (e.g., servers, databases, applications).**
- **The physical building or environment where this hardware and software are housed (e.g., data centers, office server rooms).**

What is data retrieval?

Data retrieval is the process of retrieving data from storage.

What is data dissemination?

Data dissemination is the process of distributing and sharing information such as reports, videos, photographs, and other system outputs to users.

What is an example of an IS improving a restaurant's transactional business?

Online ordering systems ensure the restaurant knows exactly what food the customer wants, reducing errors compared to verbal or phone orders.