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CS101

Important MCQs Final term 2023

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MODULE 82 To 234

Efforts By a Student

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- A primary prevention technique is to filter traffic passing through a point in the network, usually with a program called a **FIREWALL**
- **SPAM FILTERS** which are firewalls designed to block unwanted email.
- Another preventative tool that has filtering connotations is the **PROXY SERVER**.
- particular kind of service (**FTP, HTTP, telnet, etc.).**
- **FTP proxy** server could check all incoming files for the presence of known viruses and block all infected files
- **antivirus software**, which is used to detect and remove the presence of known viruses and other infections
- **authentication**—making sure that the author of a message is, in fact, the party it claims to be.
- A prime example is the secure version of **HTTP**, known as **HTTPS**
- The backbone of HTTPs is the protocol system known as **Secure socket layer (SSL),**

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- One key is known as **public key**, is used to encrypt message;
- the older key known as the **private key**, is required to decrypt message
- **Certificate authorities** whose task to be maintain accurate lists of parities and their public key.
- **Certificates**. A certificate is a package containing a party's name and that party's public key.
- In this manner, the holder of the private key can produce a bit pattern, called a **digital signature**,

  US – Computer Fraud and Abuse Act passed **in 1948**
- US- Electronic communication privacy Act **(ECPA)**
- National assembly pass new cybercrime law in **2016.**

- Pakistan – applicable Security acts
  - ✓ Prevention of electronic crime ordinance ,2007
  - ✓ Electronic transaction ordinance, 2002-2008
  - ✓ Pakistan Telecommunication (Re-Organization) Acts 1996
  - ✓ Wireless Telegraphy Act 1933
  - ✓ Telegraph Act, 1885

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- ✓ Federal Investigation Agency Act, 1974
- ✓ Payments and electronic fund Transfer Act, 2007

- **Algorithm** set of steps that define how a task is performed.
- CONVERT KM TO METERS Multiply the input with **1000.**
- Many researchers believe that every activity of the human mind, including imagination, creativity, and **decision making**, is actually the result of **algorithm execution**
- **Unambiguous** The information in the state of the process must be sufficient to determine uniquely and completely the actions required by each step.
- A **single algorithm** can be represented in many ways
- **F = (9/5)C + 32**
- A program is a representation of an **algorithm.**
- The term **program** usually refers to a formal representation of an algorithm designed for computer application
- A **process** already to be the activity of executing a program
- As the **terminology** used has more than one meaning.
- Each primitive has its own syntax and semantics. **Syntax refers** to the primitive's symbolic representation; **semantics** refers to the meaning of the primitive

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- loose versions of the languages **Algol and Pascal** (Java and C languages has proliferated, again because most programmers will have at least a reading knowledge of these languages.)
- A **pseudocode** must have a consistent, concise notation for representing recurring semantic structures
- This pseudocode structure directly follows the equivalent **Python assignment** statement
- **While-Structure** Another common semantic structure is the repeated execution of a statement or sequence of statements as long as some condition remains true
- the following loosely defined problem-solving phases presented by the **mathematician G. Polya in 1945**

- stepwise refinement is a **top-down methodology** in that it progresses from the general to the specific
- The idea is that by breaking the original problem into subproblems **stepwise refinement**
- A **bottom-up methodology** progresses from the specific to the general

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- The repetitive use of an instruction or sequence of instructions is an important algorithmic concept iterative structure known as the **loop**
- The **control of a loop** consists of the three activities **initialize, test, and modify**
- loop structure referred to as **a pertest loop** (since the test for termination is performed before the body is executed) and the repeat loop structure referred to as **a post test loop** (since the test for termination is performed after the body is executed)
- **Algorithm Efficiency** today's machines are capable of executing millions or billions of instructions each second
- The sequential search algorithm will interrogate an average of **n/2 entries**
- The binary search algorithm will interrogate at most **log2n entries**
- log2 n represents the base two **logarithm of n**
- **Software Verification** Distinction between Program believed to be correct and the program that is correct
- Software Failure Fatal **Therac-25** X-ray Radiation
- In **1986**, a man in Texas received between 16,500-25,000 radiations in less than **10 sec**, over an area of about **1 cm**
- The root cause of the incident was **a SoftWare failure**

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- **Welsch NHS IT Failure This** was a **technical** issue of software not the security issue
- Unfortunately, writing programs in a machine language is a tedious task that often leads to errors that must be located and corrected (a process known as **debugging)** before the job is finished
- In the **1940s**, researchers simplified the programming process by developing **notational systems** by which instructions could be represented in **mnemonic rather than numeric form.**
- **HLT = C000**
- Using mnemonics, (Here we have used LD, ADDI, ST, and HLT to represent load, add, store, and halt. Moreover, we have used the descriptive names Price, Shipping Charge, and Total Cost to refer to the memory cells at locations 6C, 6D, and 6E, respectively. Such descriptive names are often **called program variables or identifiers.)**
- programs called **assemblers** were developed to convert mnemonic expressions into machine language instructions
- A mnemonic system for representing programs is collectively called **an assembly language**

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- third generation of programming languages **FORTRAN (Formula Translator**), **COBOL (Common Business-Oriented Language),**
- Once this collection of high-level primitives had been identified, a program, called a **translator**
- Thus, these translation programs were often called **compilers**
- An alternative to translators, called **interpreters**, emerged as another means of implementing third generation languages
- **Grace Hopper**, who is recognized as the developer of the first compiler
- Third-generation language in which **German** terms, rather than English
- **natural languages** (such as English, German, and Latin) are distinguished from **formal languages (**such as programming languages) in that the latter are precisely defined by grammars, whereas the former evolved over time without formal grammatical analysis
- **American National Standards Institute (ANSI)** and the **International Organization for Standardization (IOS)** have adopted and published **standards** for many of the popular languages

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- EVen in the case of highly standardized languages, compiler designers often provide features, sometimes **called language extensions**
- Four paths representing the **functional, object-oriented, imperative, and declarative paradigms,**
- The **imperative paradigm**, also known as the **procedural paradigm**, represents the **traditional approach** to the programming process. It is the paradigm on which **Python** and our **pseudocode** are based as well as the machine language.
- The **imperative paradigm** tells us to approach the programming process by finding an algorithm to solve the problem at hand and then expressing that algorithm as a sequence of commands
- In contrast to the imperative paradigm is the **declarative paradigm**,
- More precisely, a **declarative programming** system applies a pre-established general-purpose problem-solving algorithm to solve problems presented to it.
- **Functional paradigm**. Under this paradigm a program is viewed as an entity that accepts inputs and produces outputs. Mathematicians refer to such entities **as functions**, which is the reason this approach is called the functional paradigm. **Under this paradigm a program is**

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constructed by connecting smaller predefined program units (predefined functions

- **LISP** programming language (a prominent functional programming language) by the expression
- Another programming paradigm (and **the most prominent one in today's software development)** is the **object-oriented paradigm**, which is associated with the programming process called **object-oriented programming (OOP).**
- Following this paradigm, a **software system is viewed as a collection of units, called objects**, each of which is capable of performing the actions that are immediately related to itself as well as requesting actions of other objects
- **Each of these objects would encompass a collection of functions (called methods** in the object-oriented vernacular.
- This description of the object's properties is called **a class.**
- (An object that is based on a particular class is said to be an **instance** of that class.
- The **type integer** refers to numeric data consisting of whole number two's complement notation.
- The ***type float real*** numeric data that other than whole numbers

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- Other common data types include **character and Boolean**. The type character refers to data consisting **of symbols**, probably stored **using ASCII or Unicode**
- The type **Boolean** refers to data items that can take on only the values **true or false.** Operations on data of typee
- The data types that are included as primitives in a programming language, such as **int for integer** and **char for character**, are called **primitive data types**. As we have learned, the data types such as**: integer, float, character, and Boolean** are common primitives.
- **data structure**, which is the **conceptual shape** or arrangement of data
- One common data structure is the **array,** which is a block of elements of the same type such as a one-dimensional list, a two-dimensional table with rows and columns, or tables with higher dimension
- An array in which all data items are the same type, an **aggregate type** (also called a **structure, a record**, or sometimes a **heterogeneous array**) is a block of data in which different elements can have different types
- The most basic imperative statement is the **assignment statement**

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- Z = X + Y; the sum of **X and Y be assigned to the variable Z**. The semicolon at the end of the line, which is used to **separate statements** in many imperative languages
- In some other languages (**such as Ada)** the equivale- lent statement would appear

  Z **:=** X + Y;
- A **control statemen**t alters the execution sequence of the program. Of all the programming constructs.

  if (condition)

  Statement A

  else

  Statement B.
- **float f=3.5;**

  if (CGPA>=3.0)

  count< <" Give scholarship"

  else

  count <<"Sorry you do not Qualify for the scholarship"

  Ans: Give scholarship
- The **loop control structure** iterates a set of instructions based on the provided condition
-

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- This loop will execute **5 times** as follows:
- Such simultaneous execution of multiple activations is called **parallel processing** or **concurrent processing**
- . True parallel processing requires multiple **CPU cores**
- Many modern computer applications are more easily solved in the context of **parallel processing** than in the more traditional context involving a single sequence of instructions
- what we have informally referred to as an activation is called a **task in the Ada** vernacular and a **thread in Java.**
- C-language has the following arithmetic operators
- +, -, and * are the same as used in the **mathematic**

+ Addition

- Subtraction

*** Multiplication**

/ Division

% Modulus

- The remaining **"1"** can be acquired by using the modulus operator **(%).**

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C-language has the following relational operators:

<	Less than
<=	Less than or equal to
>	Greater than
>=	Greater than or equal to
==	Equal to
!=	Not Equal to

-
- Now if the result after comparison of two variables is True, then if statement returns value **1.**
- And if the result after comparison of two variables is False, then if statement returns value 0.
- C-language **Logical Operators** are used if we want to compare more than one condition **&&**

3. Following table shows us the different C++ operators availat

Operators	Name of the Operator	Type
&&	AND Operator	Binary
||	OR Operator	Binary
!	NOT Operator	Unary

-

  !

- Quantitative techniques, called **metrics,** for measuring the properties of software.

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- Some researchers, sometimes called **practitioners,** work toward developing techniques for immediate application, whereas others, called **theoreticians,** search for underlying principles and theories on which more stable techniques can someday be constructed
- Software errors f **$5 million** by the Bank of New York
- computer-aided software engineering **(CASE),**
- integrated development environments (**IDEs)**
- The most fundamental concept in software engineering is the **software life cycle**
- The case of other products, the maintenance phase tends to be a **repair process**, whereas in the case of software, the maintenance phase tends to consist of **correcting or updating**.
- The major steps in the traditional **software development life cycle SDLC there are three major steps**

  requirements analysis, design, implementation, and testing
- **Requirements Analysis**: The software life cycle begins with requirements analysis

  Goal : define how the outside world will interact with the system.

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- **stakeholders (future users** as well as those with other ties, such as legal or financial interests) of the proposed system. In fact, in cases where the ultimate user is an entity **government agency**
- commercial off-the-shelf **(COTS)**
- These requirements are recorded in a document called a **software requirements specification**
- From a lay- person's perspective, requirements analysis is often equated with deciding **what** a software system is to do, whereas design is equated with deciding **how t**he system will do it
- **software analyst** (sometimes referred to as a system analyst) a and **a programmer**. The former is a person involved with the entire development process
- **Testing** is now recognized as only one segment in the overall struggle for quality assurance
- **water- fall model**, an analogy to the fact that the development process was allowed to flow in only one direction. water- fall model and the "free-wheeling," trial-and-error
- Another model that represents the shift away from strict adherence to the waterfall model is the **iterative model**

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- A significant example of iterative techniques is the **rational unified process** (RUP, rhymes with “cup”) that was created by the **Rational Software Corporation**, which is now a division of **IBM**
- These guidelines, along with CASE tools to support them, are **marketed by IBM.**
- non-proprietary version, called the **unified process**, that is available on a non-commercial basis.
- **prototyping** in which incomplete versions of the proposed system, **called prototypes**, are built and evaluated.
- In the case of the incremental model these prototypes evolve into the complete, final system, a process known as **evolutionary prototyping**.
- In a more iterative situation, the prototypes may be discarded in Favor of a fresh implementation of the final design. This approach is known as **throwaway prototyping**.
- An example that normally falls within this throwaway category is **rapid prototyping** in which a simple example of the proposed system is quickly constructed in the early stages of development
- Perhaps the most pronounced shift from the waterfall model is represented by the collection of methodologies known **as agile methods**

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- , One example of an agile method is extreme programming (**XP)**
- XP model, software is developed by a team of less than a **dozen** individuals
- agile methods are characterized by **flexibility**
- division of software into manageable units, generically called **modules**, each of which deals with only a part of the software's overall responsibility.
- context of the imperative paradigm, modules appear as functions. In contrast, the **object-oriented** paradigm uses objects as the basic modular constituents
- minimize the linkage between modules (known as intermodular **coupling)**
- Intermodular coupling occurs in several forms. One **is control coupling**, which occurs when a module passes control of execution to another, as in a function call.
- **data coupling**, which refers to the sharing of data between modules. If two modules interact with the same item of data, then modifications made to one module may affect the other
- **global data**, which are data items that are automatically available to all modules throughout the system, as opposed to local data items

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- The term **cohesion** refers to this internal binding or, in other words, the degree of relatedness of a module's internal parts
- A weak form of cohesion is known as **logical cohesion**
-
- A stronger form of cohesion is known as **functional cohesion**
- f information hiding, which refers to the **restriction of information** to a specific portion of a software system
- **"black box"** whose interior features can be ignored by its user
- the object-oriented programming languages C++, Java, and C# C++ is associated with the **C++ Standard Template Library**, the Java programming environment is accompanied by the Java **Application Programmer Interface (API),** and C# programmers have access to the .NET Framework Class Library
- **component**, which is, by definition, a reusable unit of software. In practice, most components are based on the object-oriented paradigm
- Research in the development and use of components has led to the emerging field known as **component architecture** (also known as component-based software engineering) in which the traditional role of a programmer is replaced by a **component assembler**

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- **A design pattern** is a pre-developed model for solving a recurring problem in software design
- the Adapter pattern provides a standard approach to "**wrapping**
- Java programming environments provided by **Oracle** and the .NET Framework provided by **Microsoft**
- The origins of design patterns lie in the research of Christopher **Alexander in traditional architecture**
- The Factory Design Pattern is a commonly used design pattern where we need to create Loosely Coupled System. Basically, it comes under Creational Pattern and it is used to create instance and reuse it. **Factory Pattern is based on real time factory concept**
- Application Service Providers (**ASPs)**
- **software quality assurance (SQA) groups**, which are charged with overseeing and enforcing the quality control systems adopted by the organization
- IEEE Standard for Software Reviews, known as **IEEE 1028**
- This is an instance of the proposition known as the **Pareto principle**, in reference to the economist and sociologist Vilfredo Pareto **(1848–1923)**

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- Another software testing methodology, **called basis path testing**, is to develop a set of test data that ensures that each instruction in the software is executed at least once
- An example of black-box testing is the technique, called **boundary value analysis**, that consists of identifying ranges of data, called **equivalence classes**, over which the software
- The purpose **of system documentation** is to describe the software's internal composition so that the software can be maintained later in its life cycle
- The purpose of **technical documentation** is to describe how a software system should be installed and serviced (such as adjusting operating parameters, installing updates, and reporting problems back to the software's developer)
- Research in human-machine interface design draws heavily from the areas of engineering called **ergonomics,** which deals with designing systems that harmonize with the physical abilities of humans, and **cognatic,** which deals with designing systems that harmonize with the mental abilities of humans. Of the two, ergonomics is the better understood, largely because humans

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- **three categories of documentation**: **user documentation, system documentation**, and **technical documentation**. The purpose of user documentation is to explain the features of the software and describe how to use them
- The **GOMS** (rhymes with “Toms”) model, originally introduced in **1954,** is representative of the search for metrics in the field of human-machine interface design
- acronym **GOMS—goals, operators**, methods, and selection rules. In short, **GOMS is** a **methodology** that allows the actions of a human using an interface to be analysed as sequences of elementary steps
- GOMS is founded on features of **human behaviour**
- **GOMS reemphasizes** the role that human characteristics play in the field of **human-machine** interface design, even
- The rights of the developer are formally expressed in legal terms in a **software license**
- **A software license** is a legal agreement between the owner and user of a software product that grants the user certain permissions to use the product without transferring ownership rights to the intellectual property

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- Patent laws were established to allow **an inventor** to benefit commercially from an invention typically **20 years from the date**
- **Research in Motion (RIM**—the makers of the BlackBerry smartphones
- **NPT a total of $612.5 million,**
- **array is a "rectangular" block of data whose entries are of the same type. The simplest form of array is the one-dimensional array**, a single row of elements with each position identified by an index.
- A one-dimensional array **with 26 elements** could be used to store the number of times each **alphabet letter** occurs in a page of text, for example. A two-dimensional array consists of multiple rows and columns in which positions are identified by pairs of indices—
- In contrast to an array, recall that an **aggregate type** is a block of data items that might be of different types and sizes. The items within the block are usually called **fields**
- **list,** which is a collection whose entries are arranged sequentially
- The beginning of a list is called the **head** of the list. The other end of a list is called the **tail**
- **A stack** is a list in which entries are inserted and removed only at the head. An example is a stack of books

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- he head of a stack is called the **top** of the stack. The tail of a stack is called its **bottom or base.** Inserting a new entry at the top of a stack is called **pushing**
- Removing an entry from the top of a stack is called **popping** an entry.
- as a last-**in, first-out, or LIFO**
- This **LIFO** characteristic means that a stack is ideal for storing items that must be retrieved in the reverse order from which they were stored
- (The term **backtracking** refers to the process of backing out of a system in the opposite order from which the system was entered
- A **queue** is a list in which the entries are removed only at the head and new entries are inserted only at the tail. people waiting to buy tickets at a theatre
- **first-in, first-out, or FIFO** (pronounced “FIE-foe”) structure, meaning that the entries are removed from a queue in the order in which they were stored
- A **tree** is a collection whose entries have a hierarchical organization similar to that of an organization chart of a typical company
- Each position in a tree is called a **node**
- The node at the top is called the **root node**

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- The nodes at the other extreme are called **terminal nodes** (or sometimes **leaf nodes)**
- We often refer to the number of nodes in the longest path from the root to a leaf as the **depth** of the tree
- We refer to its immediate descendants as its **children** and its immediate ancestor as its **parent**
- we speak of nodes with the same parent as being **siblings**
- A tree in which each parent has no more than two children is called a **binary tree.**
- We call these smaller structures **subtrees.**
- Each such subtree is called a **branch** from the parent
- Being numeric values, these addresses themselves can be encoded and stored in memory cells. A **pointer** is a storage area that contains such an encoded address
- There we found that a register called a **program counter** is used to hold the address of the next instruction to be executed
- In fact, another name for a program counter is **instruction pointer.**
- **flat file**, which is a one-dimensional storage system, meaning that it presents its information from a single point of view
- Today, database technology, combined with **data mining techniques**,

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- World Wide Web. The underlying theme of sites such **as Google, eBay, and Amazon**
- A **schema** is a description of the entire database structure that is used by the database software to maintain the database. A **subschema** is a description of only that portion of the database pertinent to a particular user's need
- database application the two major application

  1 application layer **2** database management layer
- Note that the application software does not directly manipulate the data- base. The actual manipulation of the database is accomplished by the **database management system (DBMS).**
- This conceptual view of the database is called **a database model**
- Relational database model portrays data as being stored in rectangular tables, called **relations,** which are similar to the format in which information is displayed by spreadsheet programs.
- A pivotal step in designing a relational database is to design the relations making up the database **(IMP LINE)**
- To retrieve the information about an employee, we must select the tuple with the appropriate identification attribute value from the **EMPLOYEE relation**

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- One operation we might want to perform on a relation is to select **tuples** possessing certain characteristics and to place these selected **tuples** in a new relation. To express this operation, we adopt the **syntax**
- the SELECT operation, which extracts **rows** from a relation
- n, the PROJECT operation extracts **columns**

  PROJECT EXAMPLE:

  NEW2 <- PROJECT Job Title from NEW1

  MAIL <- PROJECT Name, Address from EMPLOYEE
- This list is in the newly created (two-column) relation called **MAIL**
- This approach leads to an **object-oriented database** consisting of objects that are linked to each other to reflect their relationships.
- The point at which all the steps in a transaction have been recorded in the log is called the **commit point**
- the DBMS might find itself with a partially executed transaction that cannot be completed. In this case the log can be used to **roll back**
- This might mean that these additional transactions must also be rolled back, which might adversely affect still other transactions. The result is the problem known as **cascading rollback.**

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- locking protocol in which the items within a database that are currently being used by some transaction are marked as such. These marks are **called locks**
- Two types of locks are common—**shared locks and exclusive locks.**
- **wound-wait protocol** (old transactions wound young transactions, young transactions wait for old ones
- the end of a sequential file as the end-of-file **(EOF)**
- A classic example involving **sequential files** is payroll processing in a small company
- **Hashing** is a technique that provides similar access without such overhead.
- The data storage space is divided into several sections, called **buckets,**
- (This conversion from key values to bucket numbers is called **a hash function.)**
- When hashing is applied to a storage structure in mass storage, the result is called a **hash file**. When applied to a storage structure within main memory, the result is usually called a **hash table.**
- If a disproportionate num- Ber of keys happen to hash to the same bucket (a phenomenon called **clustering),**

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- data mining is practiced on static data collections, called **data warehouses**

  Two common forms of data mining are **class description and class discrimination**.

  Class description deals with identifying properties that characterize a given group of data items, whereas **class discrimination** deals with identifying properties that divide two groups

- Another form of data mining is **cluster analysis**, which seeks to discover classes.
- **association analysis**, which involves looking for links between data groups
- **Outlier analysis** is another form of data mining. It tries to identify data entries that do not comply with the norm
- **sequential pattern analysis** tries to identify patterns of behaviour over time.
- In some cases, the **data collection** process is readily apparent; in others it is subtle

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- Artificial intelligence is the field of computer science that seeks to build autonomous machines - machines that can carry out complex tasks without human intervention. **AI is helping to make Robots**
- alleviate a person even **40 times a day**
- **Pepper Robot** works as receptionist in Belgian hospital
- This could take the form of developing **procedural knowledge** (learning “how”) or storing **declarative knowledge** (learning “what”)
- In the past the **Turing test** (proposed by Alan Turing in **1950)** has served as a benchmark in measuring progress in the field of artificial intelligence
- Turing predicted that by the **year 2000** machines would have a **30 percent** chance of passing **a five-minute**
- **syntactic analysis**, whose major component is parsing. It is here that the subject of the sentence
- **semantic analysis** . which merely identifies the grammatical role of each word
- **contextual analysis**. It is at this level that the context of the sentence is brought into the understanding process.
- **information retrieval** and **information extraction**. Information retrieval refers to the task of identifying documents that relate to the

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Positive impact

- ✓ Easy access to online health centers
- ✓ We can take online appointment
- ✓ We can receive reports via email at home
- ✓ Hospitals can be managed more efficiently
- ✓ Online health tips/issues are available.
- ✓ Health news can be viewed online.

Negative impact

- ✓ Computer wrists – Typing too much. This creates issues in the hands.
- ✓ Eyesight – eye is not meant to look 2D for long amount of time. This increases the risk of eye diseases.
- ✓ Hearing loss is more common in those listening to high volume music on computer.
- ✓ Social Isolation
- ✓ Communication Issues
- ✓ Posture could lead bone issues
- ✓ Radiation Damage when the device is running. Its better to put off all such digital devices especially mobile phones or if it's really necessary to use mobile phone as alarm, then turn on the "airplane mode" in your phones.

- Americans use about **680 pounds** of paper per person, per year **(POSITIVE IMPACT)**
- This amounts to about **85 million** tons of paper or **2 billion trees**. **(POSITIVE IMPACT)**
- The average American household throws away **13,000 pieces** of paper (around 1 billion trees in total in USA) each year. Most in the form of packaging and junk mail . **(POSITIVE IMPACT)**

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- E-waste is sent to developing countries where people extract materials from these electronics such **as gold, silver, and copper.** **(NEGATIVE IMPACT)**
- **Ethical issues** are related to moral principles or the branch of knowledge dealing with these.

  THREE TYPES OF ETHICAL ISSUES

  1. Privacy
  2. Digital Ownership
  3. Data Gathering
- **Software licenses** typically provide end users with the right to one or more copies of the software without **violating copyrights**.
- **Software licenses** typically are either proprietary, free or open source,
- Children's Online Privacy Protection Act **(COPPA) –**
- Health Insurance Portability and Accountability Act **(HIPPA)**
- Electronic Communications Privacy Act **ECPA**
- **Intellectual property (IP)** is ideas, information and knowledge. In the University context IP can be viewed as the results and outcomes of research –

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- **Intellectual property rights (IPR)** are specific legal rights which protect the owners of IP

- **Computer security**, also known as **cyber-security** or **IT security**, is the protection of information systems from theft or damage to the hardware, the software, and to the information on them, as well as from disruption or misdirection of the services they provide
- **local area network (LAN)**
- **Privacy uses** the theory of **natural rights,** In North America, Samuel D. Warren and Louis D. Brandeis wrote that privacy is the "right to be let alone".
- **EPIC Electronic Privacy Information Centre**
- Independent non-profit research centre in **Washington D.C**. Its mission is to focus public attention on **emerging Privacy** and related human **rights issues**.
- **PI Privacy International**
- **Content filtering**, in the most general sense, involves using a program to prevent access to certain items, which may be harmful if opened or accessed
- Content filtering works by matching strings of **characters.**
- As **email spam** continues to become a major issue

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- One of the most important application software are **the word processors**
- One of the famous word processing software **is MS Word**, which is included in the **Microsoft Office.**
- **File drop-down** menu in earlier versions of **Word. Recent documents** are listed in the Recent Documents
- The ribbon is divided into **Tabs, Groups, and Commands**.
- The **main ribbon** is the **Home Tab/ribbon**. The home tab/ribbon in Excel and **PowerPoint are similar.**
- In the lower right-hand corner of some groups is a small down pointing arrow. These are referred to as **Dialog Expanders or Launchers**.
- **Simple Buttons** work as **Toggles or on/off switches**
- **Drop-down menu** buttons will have a down arrow to the right of the command **Change case** control is an example
- **simple button** and a **drop-down menu button**. There are two buttons for these commands. The left button is a simple button and the right buttons is drop-down menu arrow button
- **Underline** is an example of a combination command

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- The **Mini Toolbar** appears automatically whenever you select text and contains common text formatting command
- The **Quick Access Toolbar** provides easy access to the commands you use most frequently. The Save, Undo, Redo/Repeat, and Quick Print buttons appear on the Quick Access Toolbar by default

Alternate Method -- Undo & Redo by Using Keys

1. Type word "Undo example".
2. Press Ctrl+z. The typing disappears.
3. Press Ctrl+y. The typing reappears.
4. Select "Undo example."
5. Press Ctrl+u to underline.
6. Press Ctrl+z. The underline is removed.
7. Press Ctrl+y. The underline reappears.

-
  - The home ribbon is one of the most important ribbon available in the **MS Word**
  - different **important groups** such as: **Clipboard, Font, Paragraph, Styles and Editing**
  - **Home** ribbon is made up of the most used commands in Word. The first group on **the Home** ribbon is the **Clipboard. Copy, Cut, Paste and Format Paste**
  - **Clipboard** group will open up the **Clipboard pane**
  - **Cut and Paste**

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- ✓ You can use Word's Cut feature to remove text from a document. You can use the Paste feature to place the information you cut anywhere in the same or another document
- ✓ The Office Clipboard is a storage area. When you cut, Word stores the data you cut on the Clipboard. You can paste the information that is stored on the Clipboard as often as you like

- Alternate Method—Cut with Keys **Press Ctrl+x**
- Alternate Method—Paste with Keys **Press Ctrl+v.**

- The **second group of commands** on the home ribbon is the Font group includes font typefaces, font size, font effects colours and more The expander arrow in the Font group will open up the Font dialog window
- Basic Text Editing (Font Group Task) (**Home Tab -> Font Group -> Font Arrow)**
- **MS Word (Paragraph Group third group** on the Home ribbon is the Paragraph Paragraph Alignment Line Spacing spacing before and after paragraphs, bullet lists Indentation outlines form Dialog expander arrow Paragraph dialog

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- The fourth group on the Home ribbon is the **Style group**
- A **style** is a set of **formatting characteristics**, such as font name, size, color, paragraph alignment and spacing.
- **Fifth and final group** Home ribbon is the Editing Group Find, Replace, and Select Find and Replace feature in Word
- Under **the Find** command, there is the **Go To** command. The Go To command can be used to immediately go to a page, a section or any marked location within your document.
- **The Select** command can be used for different purpose.

  Select All.

  Select Objects

  Select Text with Similar Formatting.
- **Pages group** is in the far left of the insert tab Cover Page, Blank Page, and Page Break
- book that keeps record of all transaction/ expenditures and income. Such a book can be called a manual or paper **spreadsheet**
- **MS-PowerPoint**. This is used to develop presentations
- . The design ribbon is the ribbon that helps you to design your slides as per your requirement. The first group is called the**: "Themes**

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- **Spreadsheet** is a tool that is used to organize data, such as a check register. Spreadsheets have been used for many, many years in business to keep track of expenses and other calculations
- : **Microsoft Excel** is an example of spreadsheet application program that can be used for storing, organizing and manipulating data
- **Excel offers** many types of charts including: Column, Line, Pie, Bar, Area, Scatter and more
- A **formula** is a set of mathematical instructions that can be used in Excel to perform calculations.
- **Type "=" (the equal sign) and the formula**
- **":" is used to specify the range of the cell on which you want to apply the formula**
- **Calculate with Functions**

  A function is a built in formula in Excel. A function has a name and arguments (the mathematical function) in parentheses.

  - ✓ Sum: Adds all cells in the argument
  - ✓ Average: Calculates the average of the cells in the argument
  - ✓ Min: Finds the minimum value
  - ✓ Max: Finds the maximum value
  - ✓ Count: Finds the number of cells that contain a numerical value within a range of the argument
- . There are **two types of sorts** in Microsoft Excel i.e. Basic Sorts and Custom Sorts

  Basic Sort

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- **Database** is collections of files which are also referred as tables. Information is organized in these tables in the form of fields and records for easy access and management purpose.
- **SQL** stands for structured query language
- This is the most commonly used syntax for querying **a relational database.**
- **External data** tab is used to import, export, collect and share data between different databases
- . Each column in table is referred to as a **field**

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Figure 236: Query Group: Query Wizard

Query Types

There are four basic types of queries used to manipulate the databases. These are briefly described in the Table 1 along with generic syntax.

Table 1: Basic Queries

Query	Description	Generic SQL Syntax
Select	Used to retrieve selected data one or more field can be selected by using comma as seperator or use * to select all table fields, followed by table name from where the data is to be retrieved. You can also add WHERE clause to set criteria for selection.	SELECT field1,field2…,fieldN FROM table_name1,table_name2; OR SELECT * FROM table_name, table_name2; OR SELECT *FROM table_name, table_name2 WHERE some criteria;
Insert	Used to add new records.	INSERT INTO table_name (field1, field2,...fieldN) VALUES
Update	Used to update existing records in database. Given some criteria in WHERE clause.	UPDATE table_name SET field1=newvalue1, field2=newvalue2
Delete	Used to remove data from database.	DELETE FROM table_name WHERE some criteria;

- A web page is nothing more than a file, a **HTML file** to be exact. It's called HTML because web page documents have the file extension .**html or .htm**
- **HyperText** Markup Language is a markup language
- **HTML** elements form the building blocks of all websites. HTML allows images and objects to be embedded
- width and height are attributes for i**mage**

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- **HTML editor** is a software application for creating web page s CSS (Cascading Style Sheets), **XML**(Extensible Markup Language) and **JavaScript**
- **Adobe Dreamweaver** is a web design and development application that provides a visual WYSIWYG editor (What You See Is What You Get)
- **Dreamweaver i**s a powerful application for developing websites and mobile applications
- **Bulleted** lists might be familiar to you if you have worked with word processing or desktop publishing applications.
- Use the **Unordered List** button in the Property Inspector to create a bulleted list

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Remember me in you Precious Prayer

Jazak Allah

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