

تمام کلاسز کی حل شدہ مشقیں [MrPakistani](http://MrPakistani.com) ویب سائٹ سے فری ڈاؤن لوڈ کریں۔

Allama Iqbal Open University Solved Assignments Spring 2026

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گھر بیٹھے حل شدہ مشقیں، گیس پیپرز، کتابیں اور خلاصے حاصل کرنے کے لیے رابطہ کریں واٹس ایپ نمبر: 03036940016

نوٹ: ہم طلبہ کے لیے جامع اور معیاری تعلیمی خدمات فراہم کرتے ہیں۔ ہماری خدمات میں علامہ اقبال اوپن یونیورسٹی کے حل شدہ اسائنمنٹس، گیس پیپرز، سابقہ پرچے، تازہ ملازمتوں کی معلومات، آن لائن سی وی تیار کرنا، ملازمت کے لیے درخواست دینا، یونیورسٹی داخلوں میں رہنمائی اور درخواست جمع کروانا شامل ہیں۔ اس کے علاوہ یونیورسٹی سے متعلق طلبہ کے ہر قسم کے تعلیمی اور رہنمائی کے کام میں مکمل تعاون فراہم کیا جاتا ہے تاکہ طلبہ کو ایک ہی جگہ پر تمام ضروری سہولیات میسر آسکیں۔



واٹس ایپ گروپ جوائن کرنے کے لیے سامنے دیے گئے لنک پر کلک کریں۔



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Assignment 2

Q.1 Define software and explain its importance in a computer system. Differentiate between system software and application software with suitable examples. Also, explain the basic steps involved in installing and uninstalling software on a computer.

Answer:

Definition of Software

A computer cannot do anything on its own; it must be provided some sequence-wise instructions and relevant data to perform its functions. This sequence of instructions is called a computer program which is commonly referred to as computer software. Software is a generic term used for collection of data and instructions given to computers to perform specific tasks. It also refers to set of programs, procedures and associated documents designed for the working of computers. The software is the logical part of the computer that user cannot touch but uses to make the computer operate. Computer software controls the operation of hardware or some other software by implementing the instructions given to it in an ordered way.

Importance of Software in a Computer System

Software is critically important because:

- A computer cannot perform any job without software
- Software provides an interface between computer hardware and users
- Software controls the operation of hardware devices
- Software enables users to perform different tasks on a computer system
- The whole computer system depends upon the services provided by the software

Difference between System Software and Application Software



Aspect	System Software	Application Software
Definition	Collection of computer programs that controls the operation of computer and its devices	Set of computer programs used to perform user specific jobs
Purpose	Provides platform for computer operation and interface between hardware and application software	Allows users to develop programs for personal/organizational use
Examples	Operating System (Windows, Linux), Utility Programs (Anti-virus, Disk Defragmenter), Device Drivers	MS Word, MS Excel, Adobe Photoshop, Oracle, Web Browser
Installation	Must be installed first on every computer	Installed after system software as per user requirements
User Interaction	Users do not interact directly with system software	Users directly interact with application software

Steps Involved in Installing Software

1. Study the features of different software versions and select the appropriate one as per your requirement
2. Make sure that system requirements are available
3. If software is already installed, it can be upgraded according to the latest version
4. Install only the licensed copy of the software
5. When you double click the setup.exe file, the installer first unzips the files to a temporary directory
6. A license agreement appears - the user must agree to move forward
7. The installer prompts the user for location of the program - user gives appropriate location
8. The installer copies the relevant program files to the target location in the destination directory
9. The software installer updates the information of system registry by adding information about new program
10. Many installers provide shortcuts at the Desktop or Start Menu to invoke the installed program
11. After completing installation, it deletes all files created temporarily



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processes, and provides mechanisms for process synchronization, communication, and deadlock handling.

4. File Management

The operating system provides a file system that organizes information into files and directories. It allows users to create, save, modify, rename, delete, and find files. The hierarchical file system organizes files under a tree structure.

5. Device Management (Control Computer Hardware)

The operating system lies between programs and BIOS (Basic Input Output System). The BIOS mainly controls the computer hardware. Every program that needs hardware resources must go through an operating system. The operating system accesses hardware resources through BIOS or device drivers.

Memory Management

Memory is the place where data or programs are stored temporarily. Primary memory (RAM) is volatile - when a computer system is shutdown, all data in memory is erased. Secondary memory (hard disks, CDs, DVDs) is non-volatile - data remains after shutting off the computer.

Commonly Used Operating Systems

1. Windows XP

Windows XP is a famous and highly compatible operating system produced by Microsoft. The name XP is abbreviated as "eXPerience". It was released worldwide in both home and professional versions in 2001. Windows XP was basically the first consumer-oriented operating system. Its characteristics include: new task based GUI, updated Start menu and Taskbar, system reliability, faster start-up, user friendly interface, hardware support improvements, remote desktop features, various improvements to system administration tools, network features, and important security features.

2. Windows 7



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Windows 7 was produced by Microsoft and released in 2009. This operating system is a successor to Windows Vista. It can be used for personal computers like home and business desktops, tablet PCs, laptops and media center PCs. Its features include: updated graphical user interface, multi-touch support, redesigned Windows shell with new taskbar, improved multimedia features, faster start-up, hardware support improvements, new version of Windows Media Center, remote desktop features, important security features, improved performance on multi-core processors, new visual style, networking features, and user friendly interface. Due to these features, Windows 7 is considered highly stable and efficient.

Q.3 Explain the basic concepts of data communication. Describe the main components of a data communication system and explain the role of computer networks in modern communication. Also, mention a few real-life applications of computer networks.

Answer:

Basic Concepts of Data Communication

Communication is basically the transfer of ideas and messages among people through different systems, devices or media such as computer, internet, cell phone, telephone, television or radio. Data communication refers to the transfer of data/information electronically in digital form between two or more nodes (computers, mobiles etc.).

Main Components of a Data Communication System

A data communication system consists of the following main components:

1. **Sender (Source):** The device or computer that initiates the transmission of data
2. **Receiver (Destination):** The device or computer that receives the transmitted data



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3. **Medium (Channel):** The physical path through which data travels from sender to receiver (e.g., cables, optical fiber, wireless)
4. **Message:** The data or information being transmitted
5. **Protocol:** The set of rules that govern data communication

Role of Computer Networks in Modern Communication

Computer networks play a vital role in modern communication by:

1. **Connecting People:** Networks enable people to communicate with each other and share their views easily across the globe. Latest information and communication technologies have already created a global village.
2. **Enabling Resource Sharing:** Networks allow sharing of hardware devices (printers, scanners), software applications, and data files among multiple users.
3. **Providing Reliable Communication:** Networks ensure that data reaches its destination accurately and securely.
4. **Facilitating Collaboration:** People can work together on projects regardless of their physical location through network-based collaboration tools.
5. **Enabling E-commerce and E-business:** Networks allow online sale and purchase, electronic payments, and digital business operations.
6. **Supporting Remote Access:** Users can access data and applications from remote locations using network connections.

Real-Life Applications of Computer Networks

1. Email (Electronic Mail)

Email is a well-known social ICT application which enables people to communicate easily. Users can send and receive messages, share documents, and get responses quickly.

2. Social Networking Websites



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Social networking websites such as Facebook, LinkedIn, and Twitter allow people to communicate with each other, share ideas, post updates, share photos and videos, and maintain social and professional connections.

3. Internet Banking

Internet banking allows customers to check balances, transfer funds, pay bills, and perform other banking transactions from anywhere without physical presence at the bank. ATM networks also allow users to withdraw money anytime.

4. Online Business and E-commerce

Customers can buy products online, make payments using smart cards, internet banking, electronic deposit, or pay bills online. This has revolutionized sales and marketing.

5. File Transfer and Sharing

Documents and software can be shared with each other through internet. Users can download software, documents, music, and videos using FTP and other file transfer protocols.

6. Searching Information

Various search engines like Google and Yahoo allow users to search for information on any topic from anywhere in the world.

7. Voice and Video Communication

Applications like Skype allow people to communicate through voice and video calls over the internet, enabling face-to-face communication across long distances.

8. Online Education and E-learning

Students can get study notes, tutorials, textbooks and solution manuals with the help of internet technology. E-learning has revolutionized education by making learning accessible from anywhere.



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Q.4 What is multimedia? Explain the different components of multimedia (text, graphics, audio, video, animation) and discuss any three applications of multimedia in real life (education, entertainment, business, healthcare, etc.).

Answer:

Definition of Multimedia

Multimedia refers to the integration of multiple forms of media including text, graphics, audio, video, and animation into a single cohesive presentation or application. It allows users to combine different types of content to create interactive and engaging experiences.

Different Components of Multimedia

1. Text

Text is the most basic component of multimedia. It includes alphabetic characters, numbers, and special symbols used to convey information. Text is used for headings, paragraphs, labels, and instructions in multimedia applications. Word processing software and desktop publishing tools are used to create and format text.

2. Graphics

Graphics packages are application programs that allow users to create, edit, display and print graphic images. Graphics enable users to manipulate visual images on a computer. Features include:

- **Sketch Design:** Creating design objects of different shapes and sizes including lines, circles, rectangles
- **Paint Feature:** Painting designs of different varieties on display screens
- **Photo Editing:** Editing and customizing digital photos, retouching images, cropping, changing image shape



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Programming languages can be categorized into low-level languages and high-level languages:

1. Low-Level Languages

- **Machine Language:** Consists of binary instructions of 0 or 1 codes. First generation computers relied on machine language. It is the only language that computers directly understand.
- **Assembly Language:** Uses special names instead of codes called mnemonics. It is easier than machine language but still requires knowledge of computer hardware.

2. High-Level Languages

These languages have close resemblance with English language. Examples include FORTRAN, COBOL, BASIC, PASCAL. They are easier to learn and use compared to low-level languages.

Generations of Programming Languages

First Generation (1GL): Machine Language - uses binary codes (0 and 1). Directly understood by computers but difficult for humans to learn and use.

Second Generation (2GL): Assembly Language - uses mnemonics (short codes) instead of binary. Requires assembler to convert to machine language.

Third Generation (3GL): High-Level Languages like FORTRAN, COBOL, BASIC, PASCAL. These use English-like statements and are easier to program. Requires compiler or interpreter for translation.

Fourth Generation (4GL): Very High-Level Languages designed for specific purposes like database query languages (SQL). They are closer to human language.

Fifth Generation (5GL): Languages used for Artificial Intelligence and logic programming. These languages focus on problem-solving constraints rather than algorithms.

Difference between Compiler, Interpreter, and Linker

Aspect	Compiler	Interpreter	Linker
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Function	Translates entire high-level program into machine language at once	Translates and executes program line by line	Combines object modules into a single executable program
Execution	Executes only after complete translation	Executes immediately after each line is translated	Works after compilation, before execution
Output	Produces object code or machine code file	Does not produce separate object file	Produces executable file
Speed	Generally faster execution	Slower because translation happens during execution	Part of compilation process
Error Handling	Reports all errors after compilation	Reports errors line by line and stops	Reports linking errors like missing functions
Storage	Saves translated code for future use	Does not save translated code	Creates final executable file

How Compiler Works in Program Development Process

1. The programmer writes the source code in a high-level language (like C, C++)
2. The compiler reads the entire source code
3. The compiler checks for syntax errors and reports them
4. If no errors, the compiler translates the entire program into machine language object code
5. The compiled object code is saved as a file (e.g., .obj or .o file)
6. The object code can be executed later without recompilation

How Interpreter Works in Program Development Process

1. The programmer writes the source code in a high-level language (like BASIC)
2. The interpreter reads one line of source code at a time
3. It translates that line into machine language
4. It immediately executes the translated line
5. It then moves to the next line and repeats the process
6. If an error is found, the interpreter stops and reports the error at that line



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How Linker Works in Program Development Process

1. After compilation, object code is created
2. The linker takes one or more object modules (compiled code)
3. It resolves references between modules (e.g., function calls across files)
4. It combines the object modules with library functions used in the program
5. It assigns final memory addresses to code and data
6. It produces a single executable file that can be run by the operating system

Program Development Process Summary

Source Code → Compiler → Object Code → Linker → Executable File → Output

↓

Source Code → Interpreter → (Translation + Execution Line by Line) → Output



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