

Comprehensive Notes On

Unit 2: Data Entry and Keyboarding Skills

Class IX - Domestic Data Entry Operator

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1 Introduction

What, Why, and How of Keyboarding Skills

What It Is: Keyboarding is the operational skill of inputting data into a computer using a keyboard quickly and accurately. The most efficient way is the *touch method of typewriting* (touch typing).

Why It Matters: In today's digital world, typing quickly without looking at the keyboard is inevitable for enhancing productivity. It saves time and prevents neck strain.

How It Works / Analogy: Think of it like playing a musical instrument or riding a bike. Through practice, your fingers develop "muscle memory" and know exactly where to go without your eyes needing to guide them.

2 Keyboarding Skills

The keyboard is the most common text-based input device. A standard computer keyboard has more than 100 keys.

2.1 Types of Keys

Key Type	Description & Examples
Alphanumeric Keys	All the alphabets (A-Z) and numbers (0-9) on the keyboard.
Punctuation Keys	Comma (,), period (.), semicolon (;), brackets ([]), and math operators (+, -, =).
Alt Key	Short for Alternate, it acts like a second control key.
Arrow Keys	Four keys (↑, ↓, ←, →) to move the cursor (insertion point).
Shift or Alt Keys	Moves the cursor in more than one position at a time or accesses top symbols.
Backspace Key	Deletes the character just to the <i>left</i> of the cursor.
Caps Lock Key	A toggle key that causes all alphabetic characters to be upper-case.
Ctrl Key	Used in conjunction with other keys to produce control characters (e.g., Ctrl+C).
Delete (Del) Key	Deletes the character at the current cursor position or the selected object.
Enter / Return Key	Used to enter commands or move the cursor to the beginning of the next line.
Esc Key	Used to send special codes or to exit (escape) from programs and tasks.
Function Keys	Labelled F1 to F12. They have different meanings depending on the running program.

Numeric Keypad

Located on the right-hand side, it resembles a calculator. It contains numbers 0 to 9, math operators, decimal point, Num Lock, and Enter keys.

- **Num Lock ON:** Functions as a number pad.
- **Num Lock OFF:** Functions as arrow keys (page up, page down, etc.).

2.2 Touch Typing Concepts

Home Keys & Guide Keys

What It Is: **Home Keys** are the resting position for your fingers. **Guide Keys** have small physical bumps.

- **Left Hand Home Keys:** A, S, D, F
- **Right Hand Home Keys:** ;, L, K, J
- **Guide Keys:** 'F' and 'J'

Why It Matters: Guide keys let you find the Home row blindly by feeling the tangible marks. From the Home keys, fingers can easily reach all other keys and return immediately.

How It Works: Place your left index finger on 'F' and right index finger on 'J'. The rest of your fingers naturally fall onto the home keys.

3 Typing and Pointing Devices

3.1 Typing and Deleting Text

- **Typing capital letters:** Switch ON Caps Lock, or hold the Shift key while pressing the letter.
- **Typing symbols:** Press and hold the Shift key, then press the key with the required symbol.
- **Creating spaces/lines:** Press the Space bar for gaps between words. Use the Enter (return) key for new lines and paragraphs.

3.2 Pointing Devices (Mouse)

Instead of typing, you can directly select items on the screen using pointing and drawing devices like a mouse, joystick, light pen, or touch pad.

The Mouse

What It Is: A pointing device used to move the pointer, select items, and draw on the screen. It typically has a left button, a right button, and a scroll wheel.

Mouse Operations:

- **Left click:** Select an item.
- **Double click:** Start a program or open a file.
- **Right click:** Display a set of commands (context menu).
- **Drag and drop:** Select, hold, move, and release an item.
- **Scroll:** Move the page up or down using the scroll wheel.
- **Blocking:** Selecting text for editing or formatting by dragging across it.

4 Typing Ergonomics

Typing Ergonomics

What It Is: The logistical and physical support system designed for efficient and effective typewriting.

Why It Matters: Prevents physical fatigue, neck pain, and wrist injuries. It is essential for attaining and maintaining high speed and accuracy.

How It Works: It involves the proper positioning of your body, chair, table, monitor, and keyboard.

Key Ergonomic Guidelines

- **Sitting Posture:** Sit straight, slightly bending your neck forward. Touch the lower portion of your back to the chair's backrest. Keep both feet flat on the floor.
- **Position of Hands:** Forearms should be at the same level as the keyboard, palms down. Keep wrists straight and hang elbows naturally.
- **Monitor Placement:** Upper border of the screen should be at eye level. Approximate distance should be 60-65 cm.
- **Mouse and Keyboard Placement:** Keep them together at an approximate distance of 20 cm for smooth, effortless operation.

5 Positioning of Fingers on the Keyboard

Row Type	Key Allocation
Second Row (Home Row)	Left hand: A, S, D, F, G. Right hand: ;, L, K, J, H.
Third Row (Upper Row)	Left hand: Q, W, E, R, T. Right hand: P, O, I, U, Y.
First Row (Bottom Row)	Left hand: Z, X, C, V, B. Right hand: /, ., ,, M, N.
Fourth Row (Number Row)	Left hand: 1, 2, 3, 4, 5. Right hand: 0, 9, 8, 7, 6.
Numeric Keypad	Index: 1, 4, 7. Middle: 2, 5, 8. Ring: 3, 6, 9. Thumb: 0. Guide key is '5'.

Successful Keyboarding Tips

- Press keys with a feather touch; do not put undue pressure.
- Rest fingers on the Home row while typing.
- Do not look at the keyboard while practicing.
- Press keys with equal intervals of time (maintain constant rhythm).
- Maintain a balance between speed and accuracy.

6 Using Typing Software

Rapid Typing Tutor is a Free and Open Source Software (FOSS) designed to help users learn typing skills.

Typing Tutor Interface

- **Taskbar:** Allows you to change basic options (keyboard layout, level, lesson, background).
- **Three horizontal buttons (top-right):** Options, About, Help.
- **Three vertical buttons (top-left):** Switch between Lesson, Statistics, and Lesson Editor.
- **Text Panel:** The area where the text to be typed is displayed.
- **Lesson Control Panel:** Includes controls to pause/resume the current lesson and adjust sound volume.
- **Virtual Keyboard:** Helps you learn touch typing with all 10 fingers.

6.1 How to Interpret Your Results

The Results dialog window has two tabs: Rating and Errors. You can review your overall skill level between *Beginner* and *Champion*.

Colour Code	Indication
Green	Right inputs within the acceptable timeframe.
Yellow	Right inputs <i>exceeding</i> the acceptable timeframe.
Red	Wrong inputs within the acceptable timeframe.
Orange	Wrong inputs that also exceed the acceptable timeframe.

6.2 Calculating Typing Speed

Term	Formula
WPM (Gross)	$(\text{Words without errors} + \text{Words with errors}) / \text{Time spent in minutes}$
Net WPM	$\text{WPM} - (\text{Words with errors} / \text{Time spent in minutes})$
CPM (Gross)	$(\text{Characters without errors} + \text{Characters with errors}) / \text{Time spent in minutes}$
Net CPM	$\text{CPM} - (\text{Characters with errors} / \text{Time spent in minutes})$

7 Comprehensive Question Bank

7.1 Multiple Choice Questions (MCQs)

1. Which of the following is **not** a key for punctuation marks?

- (a) comma (,) (b) period (.) (c) semicolon (;) (d) equal sign (=)

Answer: (d) equal sign (=)

2. Which of the following is **not** an arrow key?

- (a) top (^) (b) down (↓) (c) right (→) (d) left (←)

Answer: (a) top (^)

3. Which of the following operations is not performed by a mouse?

- (a) Left Click (b) Right Click (c) Middle Click (d) Double Click

Answer: (c) Middle Click

4. In the Rapid typing tutor, which of the following is **not** true?

- (a) Green letters denote right inputs. (c) Red letters denote wrong inputs within time.
(b) Yellow letters stand for right inputs in extra time. (d) Orange letters indicate wrong inputs with in time.

Answer: (d) Orange letters indicate wrong inputs with in time.

5. The lesson control panel can be used for _____.

- (a) animation (c) plain
(b) enable/disable sounds (d) background

Answer: (b) enable or disable sounds

6. The method of typewriting without using the sense of sight to find the keys is called:

- (a) Sight typing (b) Touch typing (c) Quick typing (d) Sense typing

Answer: (b) Touch typing

7. Which keys are known as the home keys for the left hand?

- (a) ASDF (b) QWER (c) ZXCV (d) LKJ;

Answer: (a) ASDF

8. Which key is used to delete the character just to the left of the cursor?

- (a) Delete (b) Backspace (c) Enter (d) Spacebar

Answer: (b) Backspace

9. The small raised tangible marks on a keyboard are located on which keys?

- (a) G and H (b) F and J (c) A and ; (d) D and K

Answer: (b) F and J

10. What is the approximate distance recommended between the eyes and the monitor?

- (a) 30-40 cms (b) 60-65 cms (c) 90-100 cms (d) 10-20 cms

Answer: (b) 60-65 cms

11. Which finger is used to press the Space Bar during touch typing?

- (a) Index finger (b) Middle finger (c) Ring finger (d) Thumb

Answer: (d) Thumb

12. The keys Z, X, C, V, B are located on which row?

- (a) Home Row (b) Upper Row (c) Bottom Row (d) Number Row

Answer: (c) Bottom Row

13. What is the formula for Net WPM?

- (a) Gross WPM - Errors (c) $WPM + (\text{Words with errors} / \text{Time})$
(b) $WPM - (\text{Words with errors} / \text{Time})$ (d) Total words / Time

Answer: (b) $WPM - (\text{Words with errors} / \text{Time})$

14. In Rapid Typing Tutor, which button lets you restart the current lesson?

- (a) Play button (c) Refresh/Restart button
(b) Pause button (d) Stop button

Answer: (c) Refresh/Restart button

15. Which of the following is an Open Source Software (FOSS) for learning typing?

- (a) Microsoft Word (b) Rapid Typing Tutor (c) MS Excel (d) Web Browser

Answer: (b) Rapid Typing Tutor

7.2 Assertion-Reasoning Questions

Directions: In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as:

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is NOT the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

1. **Assertion (A):** Touch typing significantly improves typing speed and accuracy.
Reason (R): The typist entirely focuses on the text being typed and relies on muscle memory without searching for keys.
Answer: (a) Both A and R are true and R is the correct explanation of A.
2. **Assertion (A):** The Enter key is used to delete the character to the left of the cursor.
Reason (R): The Enter key is used to create new lines and spaces between paragraphs.
Answer: (d) A is false but R is true.
3. **Assertion (A):** Good typing ergonomics prevents unnecessary fatigue and physical strain.
Reason (R): Sitting posture requires bending the neck backward at a 45-degree angle.
Answer: (c) A is true but R is false. (Neck should be slightly bent forward).
4. **Assertion (A):** The Caps Lock key is known as a toggle key.
Reason (R): When activated, it causes all alphabetic characters to be typed in uppercase until it is pressed again.
Answer: (a) Both A and R are true and R is the correct explanation of A.
5. **Assertion (A):** Orange letters in Rapid Typing Tutor denote correct inputs but in extra time.
Reason (R): Yellow letters stand for right inputs exceeding the acceptable timeframe.
Answer: (d) A is false but R is true. (Orange denotes wrong inputs exceeding time).

7.3 One-Word / Brief Answer Questions

1. A touch typist knows the location on the keyboard through _____.
Answer: Muscle memory.
2. The typing speed is measured in _____.
Answer: WPM (Words Per Minute) or CPM (Characters Per Minute).
3. Alphabets (A-Z) and numbers (0-9) are known as _____ keys.
Answer: Alphanumeric.
4. Del key deletes the character at the _____ cursor position.
Answer: Current / Right of the.
5. A standard keyboard has _____ Function keys.
Answer: 12.
6. Numeric keypad is used to enter _____ data.
Answer: Numeric / Numbers.
7. Page Up key is used to shift the _____ one page up.
Answer: Cursor / Screen.

8. On numeric keypad '0' is to be pressed by the _____ thumb.
Answer: Right-hand.
9. The keys 'F' and 'J' are known as _____ keys.
Answer: Guide.
10. In Rapid typing tutor, the right input entered is denoted by _____ colour.
Answer: Green.

7.4 Differentiate Between

Backspace Key	Delete Key
Deletes the character just to the left of the cursor.	Deletes the character at the current cursor position (to the right of the insertion point).
Home Keys	Guide Keys
Alphabets ASDF (left hand) and LKJ; (right hand) are the resting position for fingers.	Keys 'F' and 'J' have tangible bumps to help touch typists place fingers correctly without looking.
Gross WPM	Net WPM
Calculated using only the total words typed divided by the time in minutes.	Accounts for errors. Calculated as Gross WPM minus (Words with errors / Time spent).
Left Click	Right Click
Used to select an item or perform a primary action.	Used to display a set of commands (context menu) and available options for an item.
Shift Key	Caps Lock Key
Must be held down in conjunction with a letter key to type a single capital letter.	A toggle key that, when turned ON, causes all subsequent alphabetic letters to be up-percase.

7.5 Short Answer Questions

1. **Discuss the various types of keys available on a computer keyboard.**
Answer: A keyboard contains several types of keys: Alphanumeric keys (A-Z, 0-9), Punctuation keys (, . ;), Arrow keys (↑, ↓, ←, →), Function keys (F1-F12), and Special control keys (Ctrl, Alt, Shift, Caps Lock, Backspace, Delete).

2. **What do you understand by Guide Keys? Name the Guide keys of a computer keyboard.**
Answer: Guide keys are specific keys that have small raised tangible marks on them. They help touch typists locate the base position without looking at the keyboard. On a computer keyboard, 'F' and 'J' are the guide keys.
3. **Explain the role of typing ergonomics.**
Answer: Typing ergonomics provides the logistical and physical support for efficient and effective typewriting. It ensures proper sitting posture, correct distance from the monitor, and appropriate hand positioning, which prevents unnecessary fatigue and maintains accuracy and speed.
4. **Why is the use of various typing software common nowadays?**
Answer: Typing software, such as Rapid Typing Tutor, provides a structured and gamified environment to learn touch typing. They offer guided lessons, track typing speed (WPM) and accuracy, and provide visual feedback (color-coded errors), making learning fast and effective.
5. **Mention the finger allocation of keys of the Bottom Row of computer keyboard.**
Answer: For the bottom row, the left-hand index finger operates V and B, middle finger C, ring finger X, and little finger Z. The right-hand index finger operates M and N, middle finger comma (,), ring finger period (.), and little finger slash (/).
6. **What is the difference between green and red color indications in Rapid Typing Tutor?**
Answer: Green letters indicate that the right input was entered within the acceptable timeframe. Red letters indicate that a wrong input was entered within the acceptable timeframe.
7. **How do you type symbols using a keyboard?**
Answer: To type symbols that are located on the top half of certain keys (like @, #, \$, %), you press and hold the Shift key, and then press the key with the required symbol.
8. **What is the function of the Num Lock key?**
Answer: The Num Lock key toggles the function of the numeric keypad. When ON, it allows the entry of numbers. When OFF, the keys function as navigation and arrow keys (Home, End, Page Up, Page Down).
9. **State any two successful keyboarding tips.**
Answer: 1. Press the keys with a feather touch and avoid putting undue pressure. 2. Do not look at the keyboard while practicing; rely on muscle memory.
10. **What is the 'Drag and drop' action of a mouse?**
Answer: It allows you to select and move an item from one location to another. You point to the object, hold down the left mouse button, move the mouse to drag the object, and then release the button to drop it.

7.6 Long Answer Questions

1. **Explain the correct sitting posture and positioning of hands while typing on a computer.**
Answer:
Sitting Posture: While operating the computer keyboard, sit straight and slightly bend your neck forward. The lower portion of your back should touch the lower portion of the chair's backrest. Both feet must touch the floor completely. The monitor's upper border should be at eye level, roughly 60-65 cm away.
Position of Hands: Forearms should be placed at the same level as the keyboard, with palms facing down. Keep your wrists straight and allow your elbows to hang naturally. Do not touch the elbows to your body nor keep them too far away; bend them at approximately a 90-degree angle.

2. **Describe the "Touch Typing" method. What is its significance in data entry?**

Answer: Touch typing is the method of typewriting without using the sense of sight to find the keys. The typist memorizes the keyboard layout and relies on muscle memory. Fingers are placed on the 'Home Row' (ASDF for left, LKJ; for right), and each finger is assigned specific keys to strike, returning to the home position immediately after.

Significance: It significantly enhances operational skills in data entry by increasing speed and accuracy. Because the typist looks at the screen (or source document) instead of the keyboard, errors are spotted instantly, and typing becomes a natural, effortless phenomenon without fatigue.

3. **Explain how to interpret typing results in Rapid Typing Tutor. Detail the color codes and the metrics displayed.**

Answer: In Rapid Typing Tutor, results are displayed in a dialog window with tabs like Rating and Errors.

Metrics: The software evaluates overall skill level (Beginner to Champion), words per minute (WPM), characters per minute (CPM), and accuracy percentages.

Color Codes:

- **Green:** Right inputs within the acceptable timeframe.
- **Yellow:** Right inputs exceeding the acceptable timeframe (delayed).
- **Red:** Wrong inputs within the acceptable timeframe.
- **Orange:** Wrong inputs that also exceed the acceptable timeframe (worst result).

The error window allows the user to see exactly which keys are causing difficulties so they can focus on practicing those specific characters.

4. **Detail the allocation of keys to fingers on the Home Row and the Upper Row.**

Answer:

Home Row (Second Row): The left hand's four fingers rest on A, S, D, and F. The right hand's four fingers rest on ;, L, K, and J. The 'G' and 'H' keys are operated by the index fingers of the left and right hand, respectively. Both thumbs rest on the Spacebar.

Upper Row (Third Row): The key-reaches begin from the home row. Left hand: little finger reaches 'Q', ring finger 'W', middle finger 'E', index finger 'R' and 'T'. Right hand: little finger reaches 'P', ring finger 'O', middle finger 'I', index finger 'U' and 'Y'. Fingers must return to the Home Row immediately after striking the upper row keys.

5. **Discuss the various mouse operations and their specific uses in operating a computer.**

Answer:

- **Left Click:** Pressing the left button once. Used to select an item on the screen or position the cursor.
- **Double Click:** Pressing the left button twice quickly. Used to start a program or open a file/folder.
- **Right Click:** Pressing the right button once. Used to open a context menu displaying available commands and options for the selected object.
- **Drag and Drop:** Holding the left button on an object, moving the mouse, and releasing the button. Used to move items from one location to another.
- **Scroll:** Using the mouse wheel to move the page view up or down when the content exceeds the screen length.
- **Blocking:** Clicking and dragging across text to highlight it. Used to select text that needs to be edited, copied, or formatted.

7.7 Case-Study / Competency-Based Questions

Case Study 1: Setting up an Office Desk

Rahul has recently joined a Data Entry firm. By the end of his shift, he constantly complains of severe neck pain, wrist ache, and eye strain. His manager notices that Rahul's monitor is placed very low, his keyboard is almost falling off the edge of the desk, and he uses the "Hunt-and-Peck" method of typing by staring closely at his keyboard.

1. **Identify the main cause of Rahul's physical discomfort.**

Answer: Poor typing ergonomics, specifically incorrect monitor and keyboard placement.

2. **What adjustment should Rahul make to his monitor to relieve neck pain?**

Answer: He should raise the monitor so that the upper border of the screen is at eye level, ensuring he doesn't have to bend his neck down.

3. **To fix his wrist ache, what rule regarding hand positioning should he follow?**

Answer: He should keep his forearms at the level of the keyboard, palms down, and wrists straight while hanging his elbows naturally.

4. **Instead of the "Hunt-and-Peck" method, what method should Rahul learn, and what are its base keys called?**

Answer: He should learn "Touch Typing". The base keys where the fingers rest are called the "Home Keys" (ASDF and LKJ;).

Case Study 2: Analyzing Typing Speed

Priya is practicing on Rapid Typing Tutor. She completes a 2-minute typing lesson. During this time, she types a total of 60 words, but she makes errors in 5 words. She notices several characters are highlighted in yellow and red on her results screen.

1. **What is Priya's Gross WPM?**

Answer: $\text{Gross WPM} = \text{Total Words} / \text{Time} = 60 \text{ words} / 2 \text{ minutes} = 30 \text{ WPM}$.

2. **Calculate Priya's Net WPM taking the errors into account.**

Answer: $\text{Net WPM} = \text{Gross WPM} - (\text{Words with errors} / \text{Time}) = 30 - (5 / 2) = 30 - 2.5 = 27.5 \text{ WPM}$.

3. **What does the 'yellow' color highlight indicate about Priya's typing for those specific characters?**

Answer: Yellow indicates that she typed the correct character, but she exceeded the acceptable timeframe (she was too slow for that character).

4. **What does the 'red' color highlight indicate?**

Answer: Red indicates that she pressed the wrong key, but she did it within the acceptable timeframe.