

INDIAN SCHOOL AL WADI AL KABIR

INFORMATION TECHNOLOGY (SUBJECT CODE - 402)

UNIT 2:

DATA ENTRY AND KEYBOARDING SKILLS

Keyboarding Skills

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- ▶ Keyboard is the most common text-based input device.
- ▶ Each key of a keyboard corresponds to a single symbol.
- ▶ Key Press allows entering alphabets, digits and notes symbols into the computer. Simultaneous key press can produce actions or computer commands.
- ▶ **The touch method** of typewriting is a method of typing without using the sense of sight to find the keys.
- ▶ A touch typist starts by placing his or her fingers on the “**start position**” in the **middle row** and knows which finger to move and how much to move it for reaching any required key.
- ▶ The typing speed can be increased gradually and speeds of 60 WPM (words per minute) or higher can be achieved.
- ▶ Keyboards are also used for computer gaming, either with regular keyboards or by using keyboards with special gaming features.
- ▶ When a key is pressed, an electrical contact is formed. These electric signals are transmitted to a micro-controller in a coded form to the computer describing the character which corresponds to that key. Keyboards are used for text-based programs and software.

Types of keys

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- ▶ **Alphanumeric keys :** All of the alphabet (A-Z) and numbers (0-9) on the keyboard.
- ▶ **Punctuation keys:** All of the keys associated with punctuation, such as the comma (,), period (.), semicolon (;), brackets ([]), and parenthesis ({ }) and so on. Also, all of the mathematical operators such as the plus sign (+), minus sign (-), and equal sign (=).
- ▶ **Alt key:** Short for Alternate, this key is like a second control key.
- ▶ **Arrow keys:** There are four arrow keys to move the cursor (or insertion point) up (↑), down (↓), right (→), or left (←). Arrow keys can be used in conjunction with the Shift or Alt keys.
- ▶ **Shift or Alt keys:** To move the cursor in more than one position at a time.
- ▶ **Backspace key:** Deletes the character just to the left of the cursor (or insertion point) and moves the cursor to that position.

Types of keys

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- ▶ **Caps Lock key:** It is a toggle key, which when activated, causes all alphabetic characters to be uppercase.
- ▶ **Ctrl key:** The control key is used in conjunction with other keys to produce control characters. The meaning of each control character depends on which program is running.
- ▶ **Delete key:** The Del key deletes the character at the current cursor position, or the selected object, but does not move the cursor. For graphics-based applications, the delete key deletes the character to the right of the insertion point.
- ▶ **Enter key or Return key:** It is used to enter commands or to move the cursor to the beginning of the next line.
- ▶ **Esc key:** The Escape key is used to send special codes to devices and to exit (or escape) from programs and tasks.
- ▶ **Function keys:** Special keys labelled F1 to F12. These keys have different meaning depending on which program is running.

Numeric keypad

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- ▶ It is normally located on the righthand side of computer keyboard.
- ▶ Numeric keypad may also work on ***dual mode***.
- ▶ On one mode, it represents numbers and on the other mode, it contains various keys like arrow keys, page up, page down, etc.
- ▶ **NumLock** is provided to switch between the two modes. Usually, some of the keyboards of laptops do not have a numeric keypad.



Home keys

- ▶ Alphabets ASDF are home keys for the left hand and LKJ for the right hand.
- ▶ The fingers are trained to make the correct movement to other keys and each finger returns immediately to its respective home key after it has depressed the corresponding key in any other row.



Guide keys

- ▶ On a computer keyboard, keys 'F' and 'J' are called guide keys for left and right hand, respectively.
- ▶ Both contain a small raised tangible mark with the help of which the touch typist can place the fingers correctly on the home keys.

Typing and deleting text

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- ▶ **For typing text in a document you should** - click on the letters on the keyboard.
- ▶ **For deleting text in a document you should** -use the backspace key or the delete key.
- ▶ The backspace key will remove text from behind (to the left of) your cursor position.
- ▶ **For typing numbers in a document** you should -use the numbers lock or the numbers on the second row of keys on the keyboard.
- ▶ Typing capital letters
- ▶ Typing symbols
- ▶ Typing sentences
- ▶ Creating new lines and spaces between paragraphs
- ▶ **Guide for typing-The cursor keys serve as a guide for typing. They can be used to move the position of the cursor. The cursor is the small downward line that flickers in a sentence while typing. Move the position of the cursor by clicking the position with a mouse.**

Pointing devices

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- ▶ Mouse, joystick, light pen, touch pad or track ball and touch screen.

Mouse

Mouse is a pointing device used to point a particular place on the screen and select to perform one or more actions.

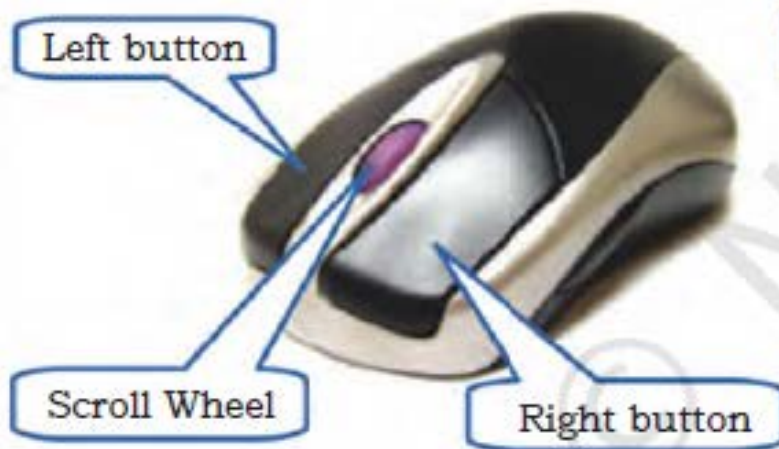


Fig. 2.3: Mouse buttons

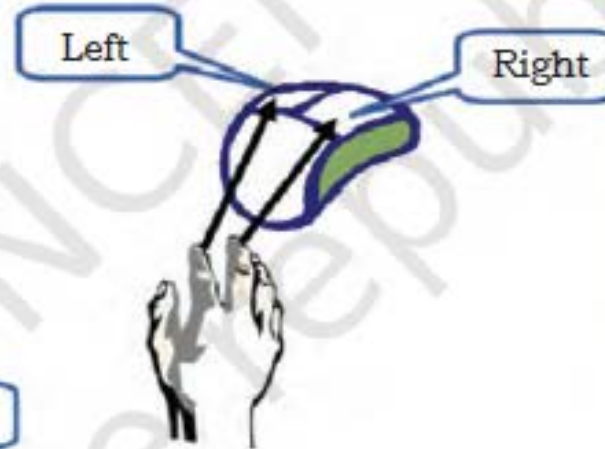


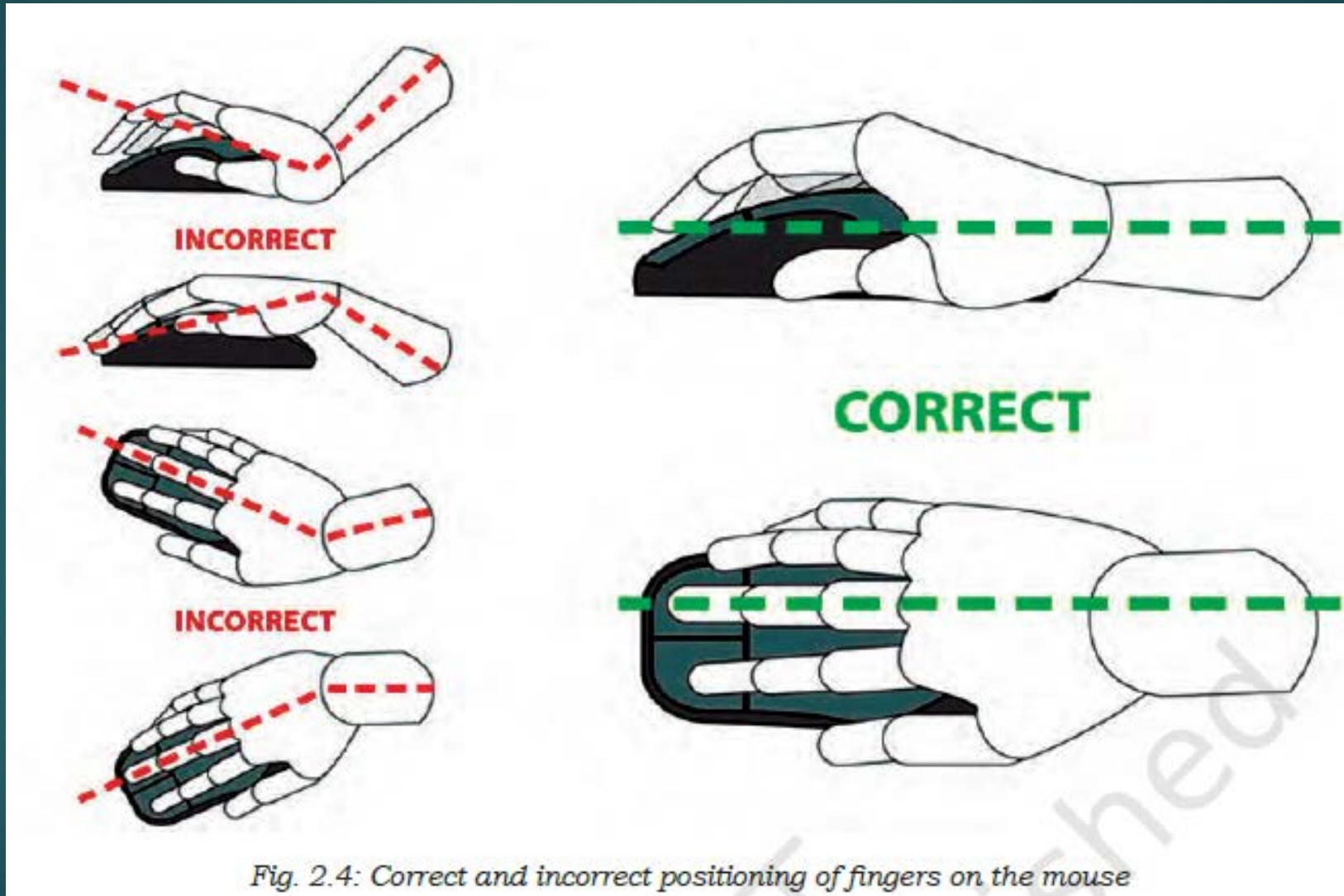
Fig. 2.4 (a) How to hold the mouse



Fig. 2.4 (b) Position of the hand while holding the mouse

Left butt

Mouse



Mouse Operations

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- ▶ Using left button of mouse different operations like selection, dragging, moving and pasting can be done. With the right button we can open a context menu for an item, if it is applicable.
- ▶ The common mouse actions are as follows:
- ▶ **(a) Click or left click:** It is used to select an item. Press down once on the left button with your index finger.
- ▶ **(b) Double click:** It is used to start a program or open a file or trigger an action.
- ▶ **(c) Right click:** It is used to display a set of commands and available options. Move the mouse pointer to the desired position, position your middle finger on the right mouse button, keeping the mouse still, click lightly with the middle finger on the right button.

- ▶ **(d) Drag and drop:** It allows to select and move an item from one location to another. Position the mouse on an object, hold down the left side of the mouse, and drag the object.
- ▶ **(e) Scroll:** Many applications provide scrollbars on right side of screen if the page length is more than the monitor/screen length. Instead of using page down key or arrow keys, one can use scroll key of a mouse to scroll up or down. If the scroll key is not available, one can click on the scroll bar on the application screen with the left button of the mouse. Use the scroll wheel on the mouse to move the page on the screen up or down.
- ▶ **(f) Blocking:** Blocking is another way of selecting text. It is used to select text that needs to be edited or formatted. Click at the beginning of the word or sentence and hold down the left button, then drag along the text and see it being highlighted in black. At the end of the text or sentence release the left button.

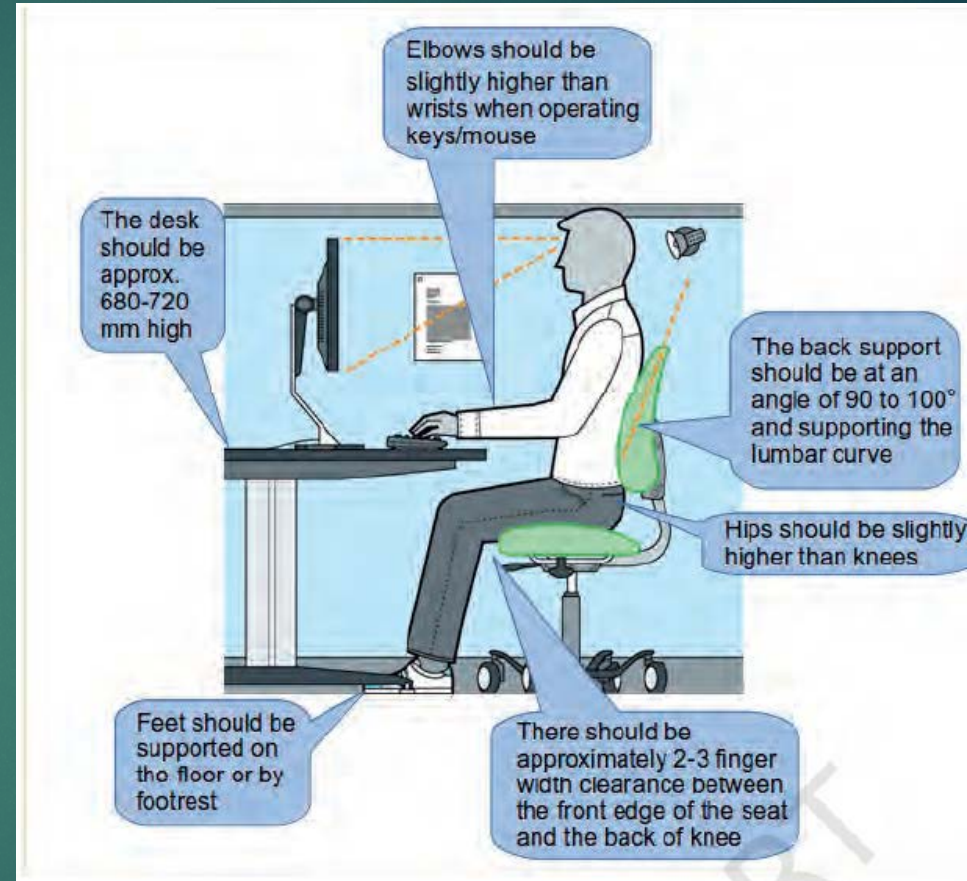
Typing ergonomics

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- ▶ Typing ergonomics provides the logistic support for efficient and effective typewriting. They are important to attain and maintain accuracy and speed.

Sitting posture

- ▶ While operating the computer keyboard, sit straight, slightly bending your neck forward. Check your comfort and sitting position of body. Touch the lower portion of your back to the lower portion of the back rest of the chair. Touch both the feet to the floor



Typing ergonomics

Position of hands

- ▶ Put your forearms at level with the keyboard and palms down. Keep your wrists straight and hang your elbows naturally.
- ▶ Don't touch the elbows to the body nor be too far away from the body.
- ▶ Bend at about a 90 degree angle



Monitor placement

- ▶ Do not bend your neck while working on the monitor and keep the upper border of screen at eye level.
- ▶ The distance of screen from the user depends on the size of the screen. Keep an approximate distance of about 60–65 cms for 17 inches screen.

Typing ergonomics

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Mouse and keyboard placement

- ▶ Keep the keyboard and mouse together at an approximate distance of 20 cms, which will help in smooth and effortless operation of keyboard.
- ▶ Same height of keyboard, mouse and elbows helps the users to work comfortably.

Chair and table placement

- ▶ Adjust computer chair and table to an optimal height. The chair of the computer user must be supportive to his/her lower back.
- ▶ Keyboard and vibrating devices, such as printers, should be on separate tables.
- ▶ The computer table should also have sufficient space for your legs. With the correct ergonomics, typewriting becomes a natural phenomenon without causing unnecessary fatigue.

Placement of matter to be typed

- ▶ Place the matter for typing to the left or right side of the keyboard preferably on a Copy Holder which has a sloping surface.

Positioning of fingers on the keyboard

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- ▶ In the Home Row Approach, also called Horizontal Approach, all the eight fingers of both the hands rest on Home Keys during the keyboard operation.
- ▶ The fingers are trained to make the correct movement to the other keys in such a way that each finger returns immediately to its home key after it has depressed the corresponding key in any other row. The thumb of the right hand is used to operate the Space Bar.

Allocation of keys to fingers

- ▶ The keyboard learning process starts from the second row (Home Row) followed by the Third Row (Upper Row), First Row (Bottom Row) and the Fourth Row (Number Row). The fingers of both the hands have to operate the keys allotted to them on each row. It must be remembered that each finger has to operate only the key allotted to it.

Allocation of keys to fingers on the second row (home row)

- ▶ Place four fingers of each hand on Home Keys. The remaining two keys 'g' and 'h' on the second row are operated by the forefingers (Index Finger) of left and right hand, respectively.

Allocation of keys to fingers on the third row (upper row)

- The next step is learning the key-reaches from the Home Row to the row above it. The learning begins with the reaches from 'a' to 'q' by left hand little finger and from ';' to 'p' by right hand little finger. This is followed by the placement of the third fingers (Ring fingers) to the adjoining keys 'w' and 'o' and so on (In the third row, the allotment of fingers is explained below.

LF	RF	MF	IF	IF	IF	IF	MF	RF	LF
Q	W	E	R	T	Y	U	I	O	P

Allocation of keys to fingers on the first row (bottom row)

- Keys Z, X, C, V, B, N, M, Comma, Full Stop and '/' sign are located on this row.

Allocation of keys to fingers on the Fourth Row (Number Row)



Fig. 2.11 Numeric Keypad on keyboard

LF	RF	MF	IF	IF
1	2	3	4	5
IF	IF	MF	RF	LF
6	7	8	9	0

Using numeric keypad

- ▶ The row which has 4, 5, 6 and + is called Home Row. This is the row which is initially practiced by a touch typist. The allocation of keys on this row is as shown in Figure.
- ▶ On a numeric keypad, the number 5 is the guide key. It has a small raised tangible mark which serves as a guide for the touch typist in the placement of fingers on other keys
- ▶ Allocation of rest of the keys on numeric keypad '0' is to be pressed by the right hand thumb.

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Number Row (Right Hand)			
RF	RF	MF	IF
	/	*	-
7	8	9	+
4	5	6	
1	2	3	Enter
0		.	



Fig. 2.12: Positioning of fingers on the number row

Calculating the typing speed

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- ▶ The typing speed can be measured with different accuracies, such as
 - ▶ How many words are typed for a certain time period (the least accurate)?
 - ▶ How many characters are typed for a certain time period?
 - ▶ How many keystrokes are made for a certain time period (the most accurate)?
 - ▶ Also there are
 - Simple speed (Gross speed)
 - Net speed (takes into account the errors)
- ▶ The following table lists the detailed descriptions of typing speed types.

A student typed 240 characters per 2 min with errors in 20 characters.

Simple speed = $240 \text{ characters} / 2 \text{ min} = 120 \text{ cpm}$

Net speed = $120 \text{ cpm} - (20 \text{ errors} / 2 \text{ min}) = 100 \text{ net cpm}$

Types	Description	Formula
WPM	the number of words typed in a one minute period of time	$\text{WPM} = (\text{Words without errors} + \text{Words with errors}) / \text{Time spent in minutes}$
Net WPM	the WPM without words with errors	$\text{Net WPM} = \text{WPM} - (\text{Words with errors} / \text{Time spent in minutes})$
CPM	the number of characters typed in a one minute period of time	$\text{CPM} = (\text{Characters without errors} + \text{Characters with errors}) / \text{Time spent in minutes}$
Net CPM	the CPM without characters with errors	$\text{Net CPM} = \text{CPM} - (\text{Characters with errors} / \text{Time spent in minutes})$
KPM	the number of keystrokes in a one minute period of time	$\text{KPM} = (\text{Keystrokes without errors} + \text{Keystrokes with errors}) / \text{Time spent in minutes}$
Net KPM	the KPM without keystrokes with errors	$\text{Net KPM} = \text{KPM} - (\text{Keystrokes with errors} / \text{Time spent in minutes})$

Typing accuracy

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- ▶ Typing accuracy is defined as the percentage of correct entries out of the total entries typed. The following table lists the different formulas for the typing accuracy calculation. Sometimes it's convenient to evaluate the typing accuracy in the Errors (percentage errors).

Description	Formula
Accuracy in the words, percent	$\text{Accuracy} = (100\% - \text{Words with errors} * 100\%) / \text{Total number of words}$
Accuracy in the characters, percent	$\text{Accuracy} = (100\% - \text{Characters with errors} * 100\%) / \text{Total number of characters}$
Accuracy in the keystrokes, percent	$\text{Accuracy} = (100\% - \text{Incorrect keystrokes} * 100\%) / \text{Total number of words}$

Typing rhythm

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- ▶ Typing rhythm means the keystrokes should come at equal intervals. To control the constant typing speed, the Slowdown indicator is used. The following table shows the different formula for the Slowdown (percentage slowdowns) calculation:

Description	Formula
Accuracy in the words, percent	$\text{Accuracy} = (100\% - \text{Words with errors} * 100\%) / \text{Total number of words}$
Accuracy in the characters, percent	$\text{Accuracy} = (100\% - \text{Characters with errors} * 100\%) / \text{Total number of characters}$
Accuracy in the keystrokes, percent	$\text{Accuracy} = (100\% - \text{Incorrect keystrokes} * 100\%) / \text{Total number of words}$

Overall rating calculation

- ▶ Overall rating (%) = (Net speed / Course goal: Speed)*100%
- ▶ where:
 - Net speed is Net WPM, Net CPM or Net KPM, the value depends on the current options
 - Course goal: Speed is customised in the options for each course

(a) Good typing speed

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- ▶ An average professional typist types usually in speeds of 50 to 80 wpm, while some positions can require 80 to 95 and some advanced typists work at speeds above 120 wpm.
- ▶ The fastest typing speed on an alphanumeric keyboard, 216 words in one minute, was achieved by Stella Pajunas in 1946.
- ▶ As of 2005, writer Barbara Blackburn was the fastest alphanumerical English language typist in the world, according to *The Guinness Book of World Records*. Using the Dvorak Simplified Keyboard, she maintained 150 wpm for 50 minutes, and 170 wpm for shorter periods. Her top speed was 212 wpm.