

# ***PENETRATION TESTING AND VULNERABILITY ANALYSIS ASSIGNMENT***

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## **Problem Statement :**

The virtual keyboard is used to evade the key loggers. However, the screen map of the virtual keyboard is taken by the key-loggers. The x and y coordinate of the mouse pointer is recorded when clicked. Later the x and y coordinates are used to find out the keys pressed.

## **What are Key - Loggers ?**

Keystroke logging is an act of tracking and recording every keystroke entry made on a computer, often without the permission or knowledge of the user. A “keystroke” is just any interaction you make with a button on your keyboard.

So basically with this kind of an information in hand a key logger can learn easily know all the information you type in your computer starting from your account login username , password an all sorts of other typed in information.

## **Need for Virtual Key boards :**

In order to protect ourselves from this key loggers attack , a simple method was found , which is to completely ditching the usage of keyboards while entering vulnerable data into the computer by simply using our cursor to click on the keys on a virtual keyboard available on screen.

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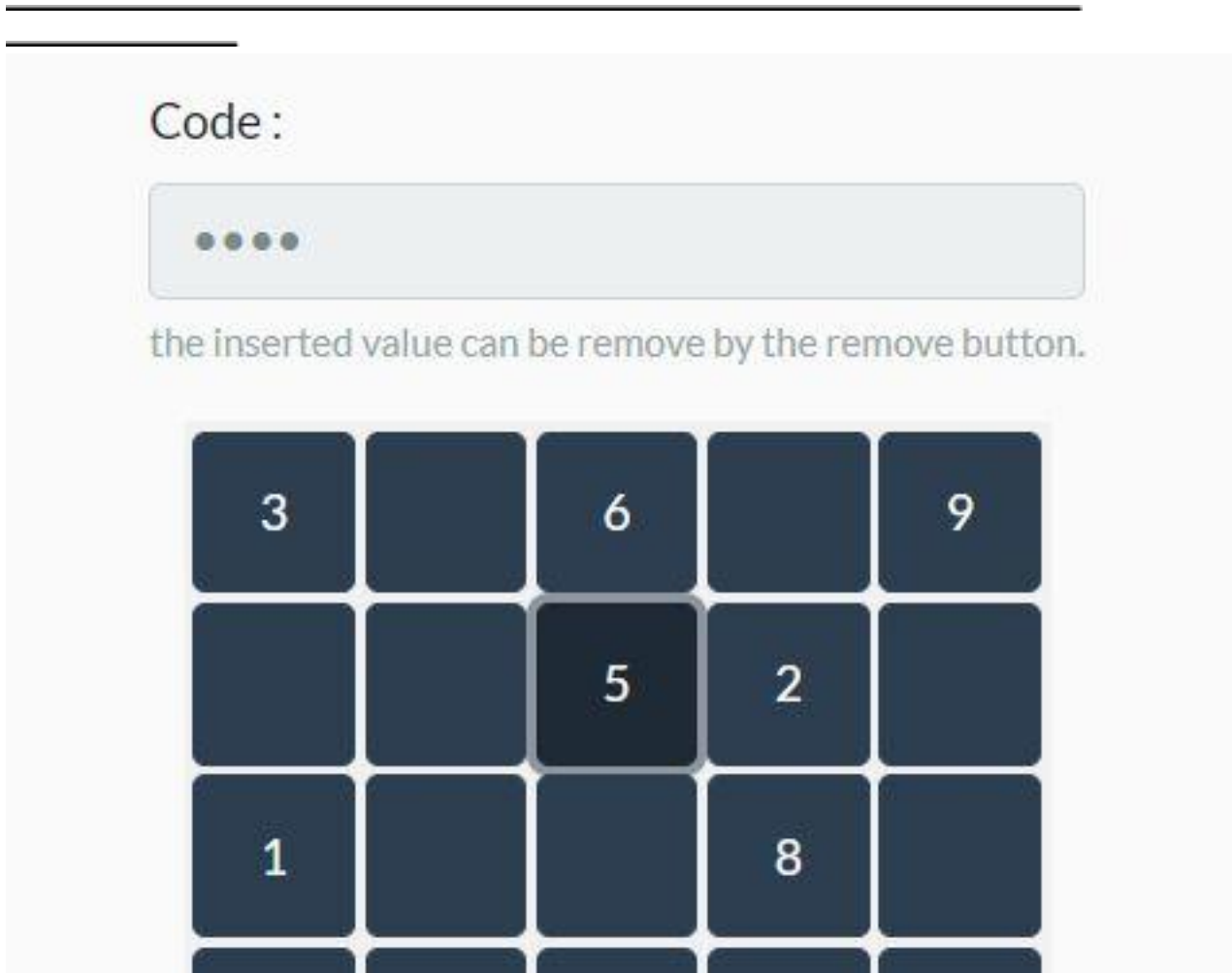
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## Ways to counter if the attacker uses cursor co- ordinates :

1. The easiest solution would be to use a key board software that generates keys of the keyboard in random positions every time.

And to further increase the difficulty the key position can be randomized in the middle of the typing where the user can be provided with a separate button to randomize the locations whenever he wants.

With this , the cursor location information would be rendered useless , since the “key” positions would not be known to the attacker.



2. Another cool idea would be to use a virtual cursor which selects the keys on the virtual keyboard by moving it with the **arrow keys instead of the actual mouse pointer** and the key can be clicked using the enter button.

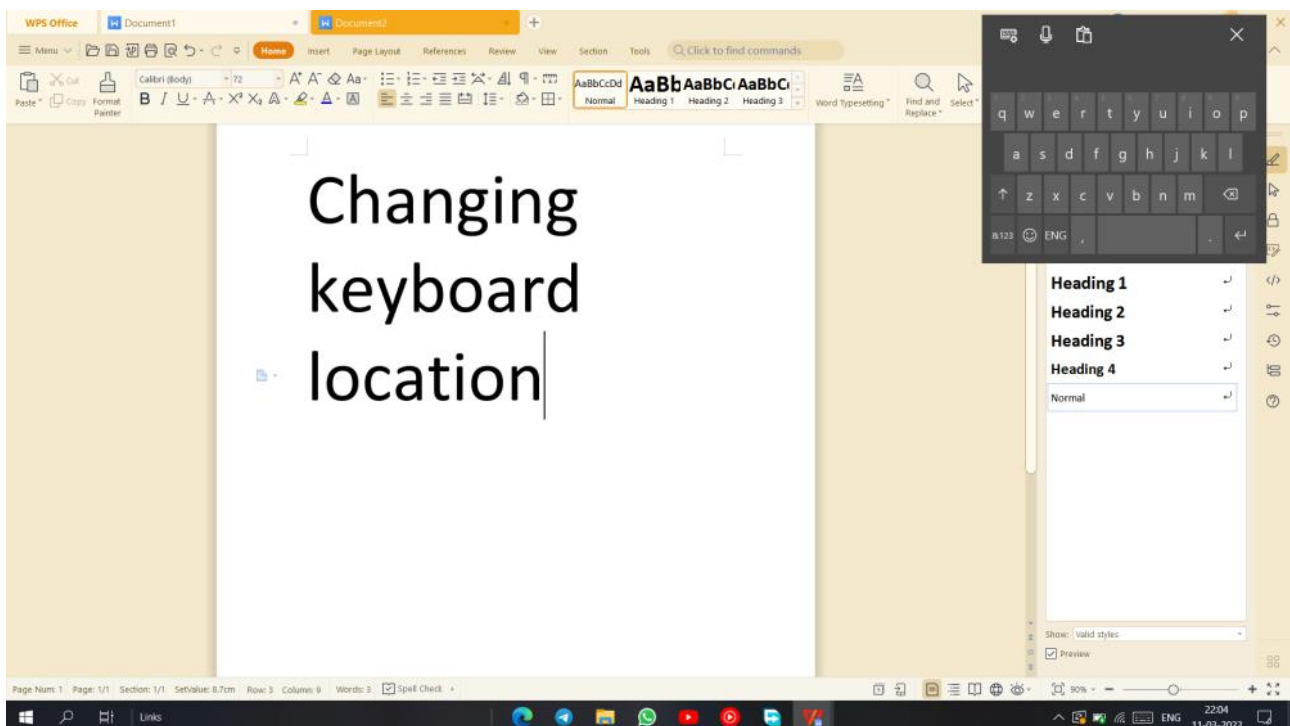
Adding to that the cursor currently selecting a key can be moved to a random key position by clicking on a button inside the keyboard given for this use.

3. Another simple yet effective way would be to simply in the middle of typing the information, so that the cursor locations would be inaccurate when

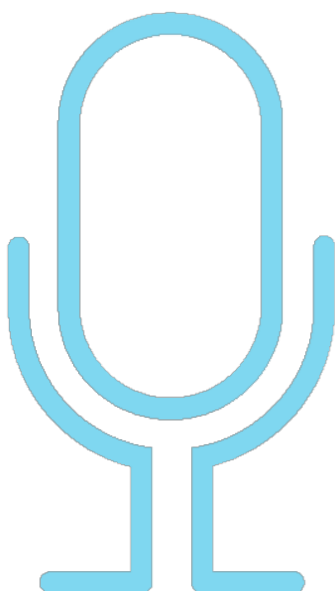
mapped on to the screen by the attacker.

the virtual keyboard to another part of the screen or to move

resize it or expand it

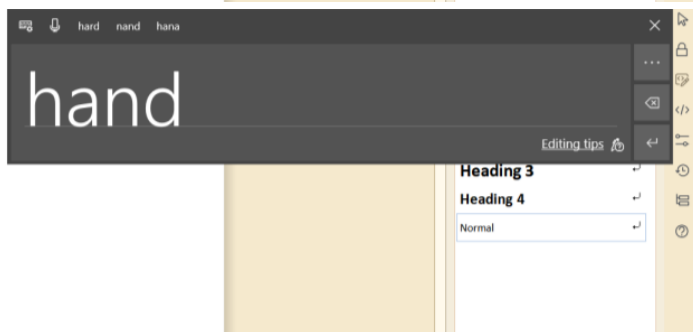
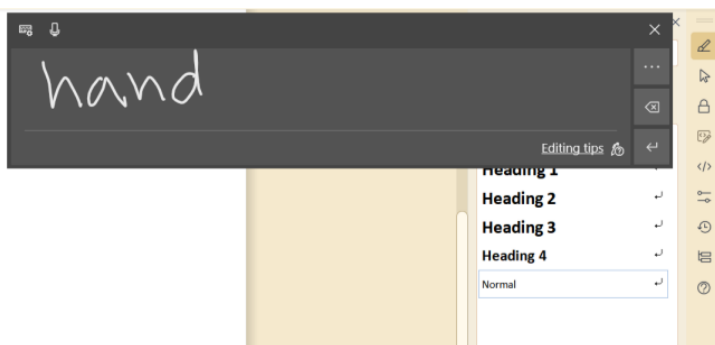


4. Using Voice-to-text keyboards can be very effective yet may cause issues with varying dialects and languages other than English.
5. Using Hand - writing to text key boards can also be a useful alternative in some cases.



hello

location



hand