

Exercise - 4

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To Have Two Mouse Cursor On Monitor

List out all input devices:

```
firoz@320-15ikb: ~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2/Two_mouse_... 🖨 🗖 🧯
File Edit View Search Terminal Help
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
/Two_mouse_cursor$ xinput
 Virtual core pointer
                                                 id=2
                                                         [master pointer
                                                                           (3)

↓ Virtual core XTEST pointer

                                                 id=4
                                                         [slave pointer
                                                                           (2)]
                                                 id=10
                                                         [slave pointer
    4 Elan Touchpad
                                                                           (2)1
 Virtual core keyboard
                                                 id=3
                                                         [master keyboard (2)]
                                                 id=5
                                                         [slave keyboard (3)]
    4 Virtual core XTEST keyboard
                                                         [slave keyboard (3)]
    4 Video Bus
                                                 id=6
    4 Video Bus
                                                 id=7
                                                         [slave keyboard (3)]
                                                 id=8
                                                         [slave keyboard (3)]
    4 Power Button

↓ EasyCamera: EasyCamera
                                                 id=9
                                                         [slave keyboard (3)]
    4 Ideapad extra buttons
                                                 id=11
                                                         [slave keyboard (3)]
    AT Translated Set 2 keyboard
                                                 id=12
                                                         [slave keyboard (3)]
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
/Two mouse cursor$
```

After plugging external mouse:

```
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
/Two_mouse_cursor$ xinput
 Virtual core pointer
                                                 id=2
                                                          [master pointer
                                                                           (3)]

↓ Virtual core XTEST pointer

                                                 id=4
                                                          [slave pointer
                                                                            (2)1
    4 Elan Touchpad
                                                 id=10
                                                          [slave pointer
                                                                           (2)]

↓ YSPRINGTECH USB OPTICAL MOUSE

                                                 id=13
                                                          [slave pointer
                                                                           (2)]
                                                          [master keyboard (2)]
 Virtual core keyboard
                                                 id=3
                                                          [slave keyboard (3)]
[slave keyboard (3)]

↓ Virtual core XTEST keyboard

                                                 id=5
    4 Video Bus
                                                 id=6
                                                 id=7
    4 Video Bus
                                                          [slave keyboard (3)]
    4 Power Button
                                                 id=8
                                                          [slave keyboard (3)]

↓ EasyCamera: EasyCamera
                                                 id=9
                                                          [slave
                                                                  keyboard (3)]
    4 Ideapad extra buttons
                                                 id=11
                                                          [slave
                                                                  keyboard (3)]
    AT Translated Set 2 keyboard
                                                 id=12
                                                          [slave keyboard (3)]
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
/Two mouse cursorS
```

We could see the YSPRINGTECH USB OPTICAL MOUSE with id = 13 has been added as a slave pointer under master pointer device with id=2

Create a new master device:

```
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
/Two_mouse_cursor$ xinput create-master Firoz Pointer
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
Two_mouse_cursor$ xinput
 Virtual core pointer
                                                id=2
                                                        [master pointer
                                                id=4
    4 Virtual core XTEST pointer
                                                        [slave pointer
                                                                         (2)1
    4 Elan Touchpad
                                                id=10
                                                        [slave pointer
                                                                         (2)]

↓ YSPRINGTECH USB OPTICAL MOUSE

                                                id=13
                                                        [slave
                                                               pointer
                                                        [master keyboard (2)]
 Virtual core keyboard
                                                id=3
    4 Virtual core XTEST keyboard
                                                id=5
                                                        [slave keyboard (3)]
    4 Video Bus
                                                id=6
                                                        [slave keyboard (3)]
    4 Video Bus
                                                        [slave keyboard (3)]
                                                id=7
                                                       [slave keyboard (3)]
    4 Power Button
                                                id=8
    4 EasyCamera: EasyCamera
                                               id=9
                                                        [slave keyboard (3)]
                                               id=11
    4 Ideapad extra buttons
                                                        [slave keyboard (3)]
    AT Translated Set 2 keyboard
                                               id=12
                                                        [slave keyboard (3)]
 Firoz_Pointer pointer
                                               id=14
                                                        [master pointer
    4 Firoz_Pointer XTEST pointer
                                               id=16
                                                        [slave pointer
                                                                         (14)1
                                               id=15
 Firoz Pointer keyboard
                                                        [master keyboard (14)]
                                               id=17
    4 Firoz_Pointer XTEST keyboard
                                                        [slave keyboard (15)]
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
/Two_mouse_cursor$
```

You can see that a new master pointer and keyboard has been created with pointer id = 14 and keyboard id = 15.

One should notice that there are no slave devices(physical hardware) under the newly created master pointer and keyboard.

So, we need to move one of my mouse to the new master pointer device.

Reattach one of mouse to the newly created master device pointer:

```
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
/Two_mouse_cursor$ xinput reattach 13 14
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
/Two_mouse_cursor$ xinput
 Virtual core pointer
                                                 id=2
                                                         [master pointer
                                                                          (3)]
    ↳ Virtual core XTEST pointer
                                                 id=4
                                                         [slave pointer
                                                                          (2)]
                                                 id=10

↓ Elan Touchpad

                                                         [slave
                                                                 pointer
                                                                          (2)]
 Virtual core keyboard
                                                 id=3
                                                         [master keyboard (2)]
    4 Virtual core XTEST keyboard
                                                id=5
                                                         [slave keyboard (3)]
    4 Video Bus
                                                 id=6
                                                         [slave keyboard (3)]
    4 Video Bus
                                                 id=7
                                                         [slave keyboard (3)]
    4 Power Button
                                                 id=8
                                                         [slave keyboard (3)]

↓ EasyCamera: EasyCamera
                                                id=9
                                                         [slave keyboard (3)]
    4 Ideapad extra buttons
                                                id=11
                                                         [slave keyboard (3)]
                                                id=12
    ↳ AT Translated Set 2 keyboard
                                                         [slave keyboard (3)]
 Firoz_Pointer pointer
                                                id=14
                                                         [master pointer
                                                                          (15)
    4 YSPRINGTECH USB OPTICAL MOUSE
                                                id=13
                                                                          (14)
                                                         [slave pointer
    ♣ Firoz_Pointer XTEST pointer
                                                id=16
                                                         [slave pointer
                                                                          (14)]
  Firoz Pointer keyboard
                                                id=15
                                                         [master keyboard (14)]

↓ Firoz_Pointer XTEST keyboard

                                                id=17
                                                         [slave keyboard (15)]
(base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
/Two_mouse_cursor$
```

Here, I have attached my external USB Optical Mouse with id=13 to Firoz_Pointer master pointer with id=14.

```
firoz@320-15ikb: ~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2/Two_mouse_...
   File Edit View Search Terminal Help
    Firoz_Pointer keyboard
                                                     id=15
                                                             [master keyboard (14)]

↓ Firoz_Pointer XTEST keyboard

                                                     id=17
                                                             [slave keyboard (15)]
   (base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab
    Two_mouse_cursor$ xinput reattach 13 14
   (base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
     wo_mouse_cursor$ xinput
     Virtual core pointer
                                                     id=2
                                                             [master pointer (3)]
       4 Virtual core XTEST pointer
                                                     id=4
                                                             [slave pointer
                                                                              (2)]
       4 Elan Touchpad
                                                     id=10
                                                                     pointer
                                                                              (2)]
                                                             [slave
                                                             [master keyboard (2)]
     Virtual core keyboard
                                                     id=3
                                                                     keyboard (3)]
       4 Virtual core XTEST keyboard
                                                     id=5
                                                             [slave
       4 Video Bus
                                                     id=6
                                                             [slave
                                                                     keyboard (3)]
                                                     id=7
                                                                     keyboard (3)
       4 Video Bus
                                                             [slave
OV
                                                     id=8
                                                             [slave
                                                                     keyboard (3)]
       4 Power Button
                                                                     keyboard (3)]
                                                     id=9
                                                             [slave
       4 EasyCamera: EasyCamera
                                                     id=11
                                                                     keyboard (3)
                                                             [slave
       4 Ideapad extra buttons
       AT Translated Set 2 keyboard
                                                     id=12
                                                             [slave
                                                                     keyboard (3)]
                                                     id=14
                                                             [master pointer
                                                                              (15)]
     Firoz_Pointer pointer
                                                                     pointer
       Firoz_Pointer XTEST pointer
                                                     id=16
                                                             [slave
                                                             [slave
                                                                     pointer
       4 YSPRINGTECH USB OPTICAL MOUSE
                                                     id=13
                                                             [master keyboard (14)
                                                     id=15
     Firoz_Pointer keyboard
                                                             [slave keyboard (15)]
                                                     id=17

→ Firoz_Pointer XTEST keyboard

un (base) firoz@320-15ikb:~/Desktop/faltu/firoz/sem_8/Device_Driver/Practice/Lab2
   /Two_mouse_cursor$
e Ismod again to confirm it was unloaded.
```