

NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS

School of Science

Information Technologies in Medicine and Biology

Direction: *Bioinformatics*

Accessibility of Information Systems and the World Wide Web

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Assignment 1

Examine the options of accessibility that are built-in the Macintosh Operating System and write a small report (3-5 pages without images). The report should include the list of Macintosh accessibility options, for each of which a small description of functionality testing and settings should be included. You should mention in each option what potential disabilities it is addressed to and also write down some personal comments about the option's usage. In the Macintosh version, the accessibility options are found as "Accessibility".

Assignment Description in Greek:

Αφού δείτε όλες τις επιλογές προσβασιμότητας που έχουν ενσωματωμένες τα Windows, γράψτε μια σύντομη αναφορά (3-5 σελίδες χωρίς τις εικόνες). Η αναφορά θα περιέχει τον κατάλογο των επιλογών προσβασιμότητας των Windows καθώς και μια περιγραφή του τρόπου λειτουργίας και των ρυθμίσεων της κάθε μίας. Βασικό είναι να αναφέρετε σε κάθε επιλογή τι πιθανές αναπηρίες στις οποίες απευθύνεται και προσωπικά σας σχόλια από την χρήση της. Ανάλογα με την έκδοση των Windows που έχετε, οι επιλογές προσβασιμότητας μπορεί να λέγονται και "Accessibility Options" ή "Ease of Access Center".

Most of people take the way they use a computer daily for granted. A keyboard, mouse and monitor seems necessary, even natural. Yet, many people must rely on other means of interacting with a computer. In this assignment, we were assigned to use and describe all the built-in accessibility options that our OS includes for helping and making accessible the content to people of any kind of disabilities.

My operating system is MacOS Sierra, version 10.12.2.

Fortunately, MacOS, like Windows and Linux operating systems, has almost all needed accessibility features built-in which can accommodate the needs of most users.

One of the first rules that should exist in all operating systems to be accessible by all kind of people is that: finding accessibility options in the operating system should be quick and easy.

For MacOS Sierra, it is easy to do that. One just has to open the Apple menu in the upper left and then click System Preferences (Figure 1), elsewise the same can be done by accessing the main menu from Launchpad and clicking System Preferences or by using the Spotlight Search for “accessibility” keyword that has the search magnifier icon. In System Preferences, the Accessibility icon is the last one in the fourth row.



Figure 1: Access to Accesibility Options

You can also open an Accessibility menu by pressing the alt, cmd and F5 keys simultaneously. Or, if you'd like to use specific features via the keyboard, you can refer to Apple's handy list of Accessibility shortcuts.

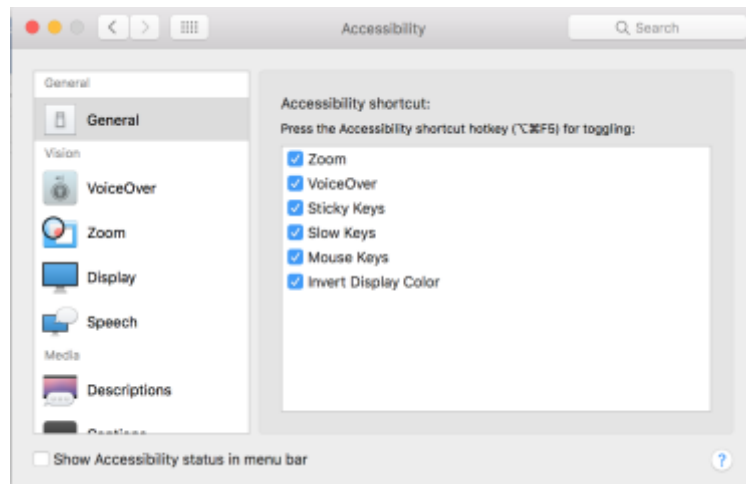


Figure 2: Accessibility Options

In previous MacOS releases the Accessibility menu was accessible by pressing the Function (Fn), Option, Command and F5 keys simultaneously.

As one can see in Figure 2, there are five (5) main sections with several subsections each, and some quick shortcuts of the functionalities that most people use.

These are:

1. General
2. Vision
 - VoiceOver
 - Zoom
 - Display
 - Speech
3. Media
 - Descriptions
 - Captions
4. Hearing
 - Audio
5. Interacting
 - Dictation
 - Keyboard
 - Mouse & Trackpad
 - Switch Control
 - Dwell Control

1. General

In the general section, there one can find the 6 most common accessibility shortcuts that respond to the biggest percentage of disabled population. These shortcuts can be easily changed and can be accessed by the MacOS Sierra top menu bar or triggered by a use of hotkeys. The default accessibility options that can be toggled are: Zoom, VoiceOver, Sticky Notes, Slow Keys, Mouse Keys, Invert Display Color.

2. Vision

The second category of features is referred to as Visions, and includes VoiceOver, Zoom, Display and Speech tools. These are useful for people who have a vision disability.

VoiceOver (Figure 3) is an advanced audio control system for people without sight. The featureset of VoiceOver is extremely advanced and includes unique touch controls, support for braille displays, and voice support for thirty languages. This feature is complex enough that Apple has developed a lengthy guide for it alone, but it's incredible for anyone who has difficulty using a computer because of their vision. Navigator, which performs a similar function in Microsoft Windows, simply can't compete.



Figure 3: VoiceOver

Zoom (Figure 4) is designed for people with poor eyesight and does exactly what it says. This is where you turn on Zoom keyboard shortcuts, and this is also where you can adjust how far you want OS X to zoom when you activate the feature.



Figure 4: Zoom

Display (Figure 5) is used to invert colors, convert to grayscale, enhance contrast and change cursor size, all of which are great for individuals with partial sight. Brightness and resolution are adjusted in a separate menu, which is linked from the Display menu.

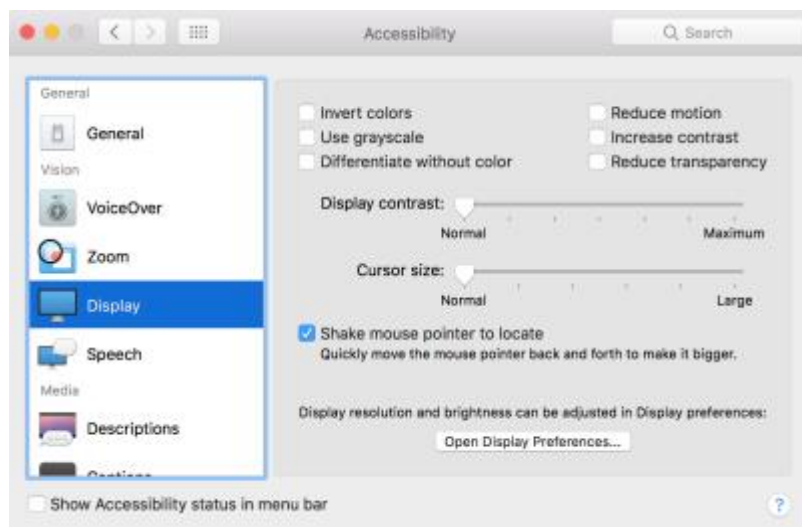


Figure 5: Display

Speech (Figure 6) is used to speak out loud the text that is hovered by the mouse pointer. There is a speaking rate for scaling from slow to fast speech, while also there is an enable announcements button for speaking out the alerts and notifications that reveal.

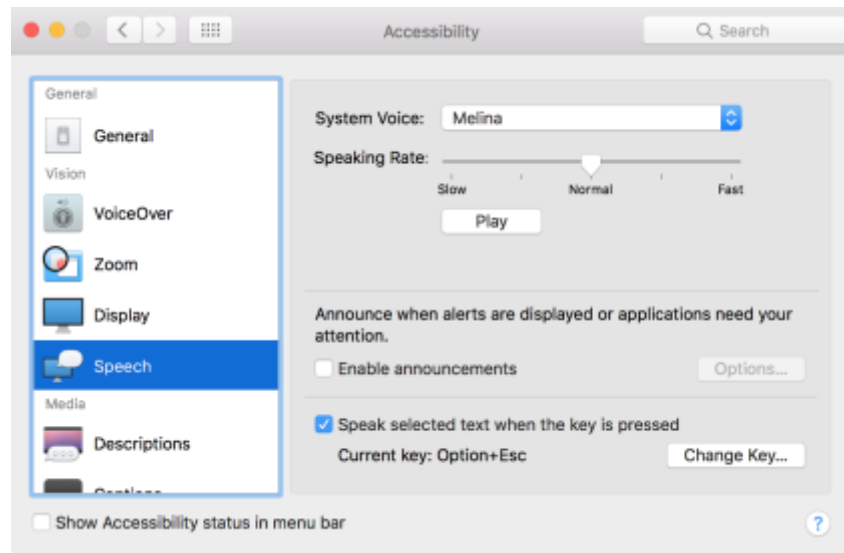


Figure 6: Speech

3. Media

The Descriptions (Figure 7) under Media can provide a spoken description of visual content in media when available (e.g. this image shows a table and three people sitting around. On the table there are 3 dishes and a basket).

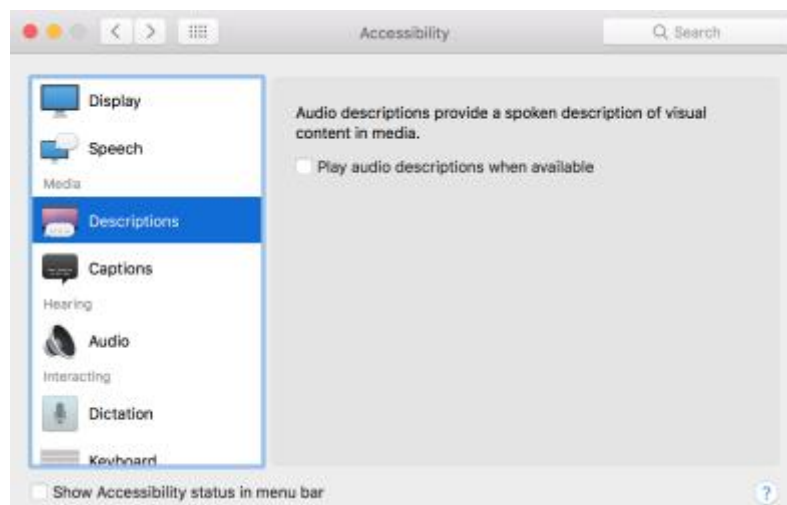


Figure 7: Descriptions

In this section you will also find the Captions (Figure 8) preferences, which except for the 3 main styles are customizable enough according to the users' preferences

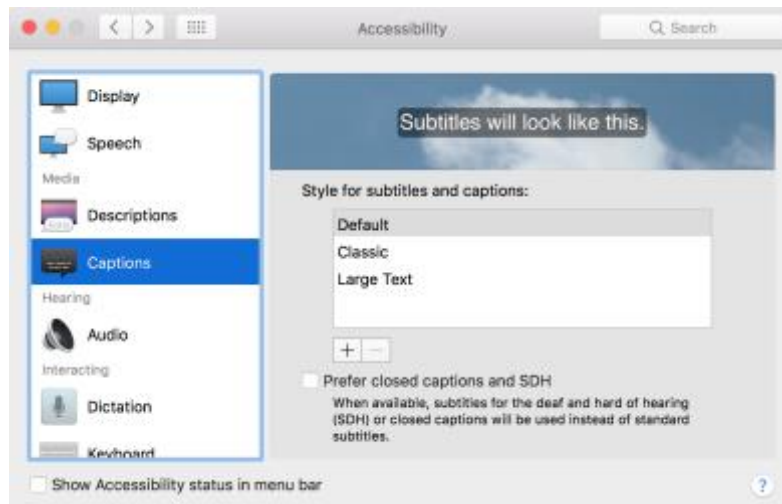


Figure 8: Captions

4. Hearing

The Audio options (Figure 9) under Hearing are basic. You can turn on screen flash, which flashes the screen when a system alert appears, and you can force stereo sound to come across as mono.

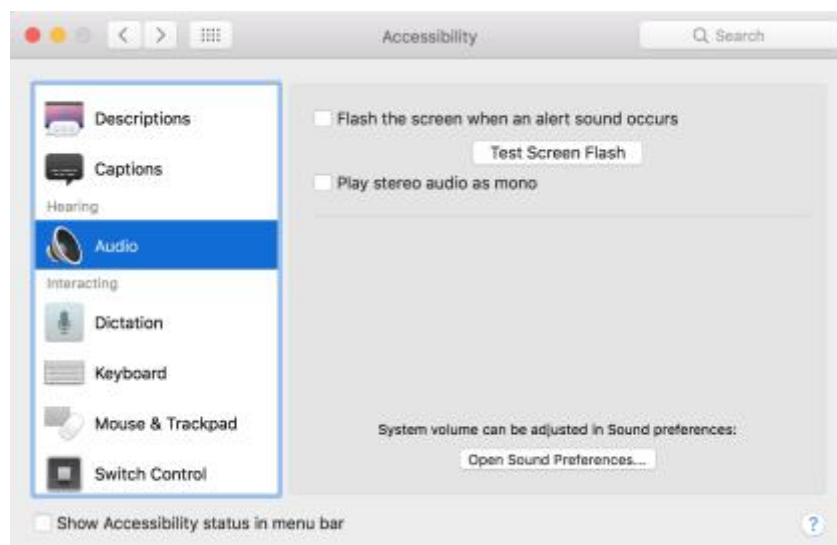


Figure 9: Audio

5. Interacting

In the Interacting category, you'll find features that change how OS X inputs work. The section starts with the Dictation (Figure 10). With dictation, user can interact with the computer by speaking to it and dictate commands that are found and can also be edited in the "Dictation Commands..." button. Apple MacOS Sierra supports also the Greek Language, among others, which is very useful for disabled users that do not know English and its pronunciation.



Figure 10: Dictation

Second is the Keyboard (Figure 11), where you can activate sticky keys or slow keys. Sticky keys let you enable modifier keys (like command) without holding them down the entire time you would like them active. Slow keys simply delays the response of a key, which in turn requires more purposeful use. You can also enable a clicky audio indicator that lets you know when a key is activated.

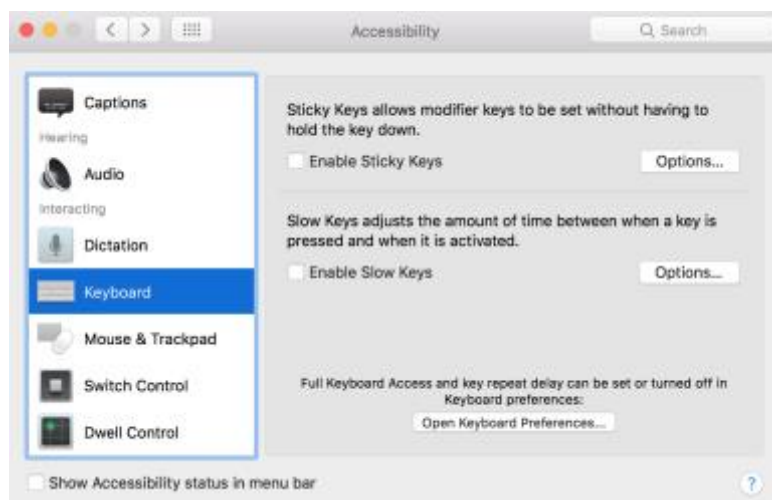


Figure 11: Keyboard

Mouse & Trackpad (Figure 12) is where you'll find Mouse Keys, a feature that allows mouse navigation via the keypad. This is also, somewhat confusingly where you'll find features that are not necessarily always related to accessibility, like cursor speed and double-click speed.

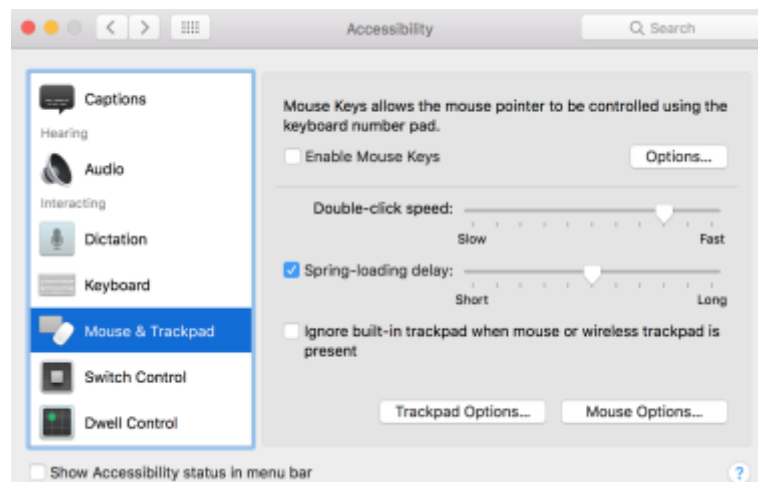


Figure 12: Mouse & Trackpad

Under Switch Control (Figure 13) you'll find a tool that lets you navigate most system functions using a single "Switch" like the spacebar. When enabled, a menu appears. Pressing the assigned switch starts navigation through the menu, which occurs automatically. When the desired command is highlighted the switch is pressed again. In this way most system functions can be controlled with a single key or button.



Figure 13: Switch Control

The mouse can be used in this fashion, too; selecting the switch causes a vertical line to scroll across the screen. When it is where you would like it, press the switch to stop the line, and then repeat this process for the horizontal access. This lets you use the mouse with only a single key.

Dwell Control (Figure 14) is a new feature of MacOS that allows people who use head- or eye-tracking hardware to move the cursor and select or drag onscreen items. When the cursor dwells on a certain location, like an app icon in the Dock or a link on a web page, a timer appears. Once the timer expires, it prompts a mouse click or other customizable action.

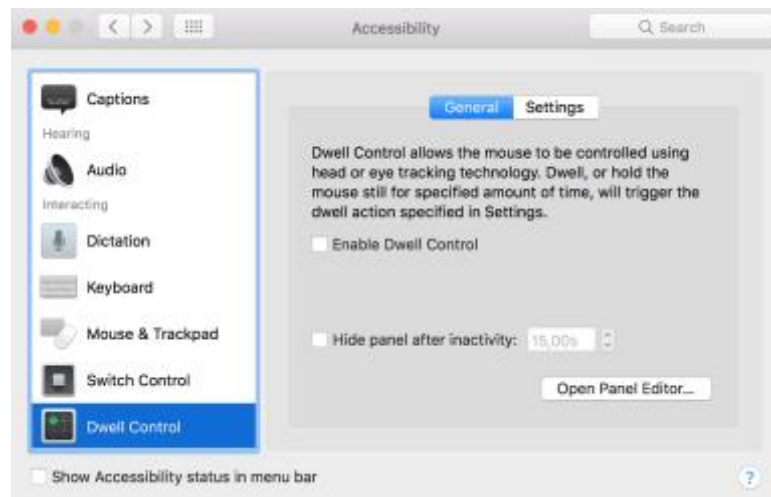


Figure 14: Dwell Control

Links

<http://www.apple.com/accessibility/mac/physical-and-motor-skills/>