UX Guidelines for an Operating System

Group 1

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Introduction

- Our aim is to develop a User Interface for an Operating System with the prime focus on the usability and the user experience.

- HCI's importance has grown since the advent of the internet.

- However, most modern operating systems were designed in 1970's, the days before the internet.

- As a result, their usability still relies on **Mental Models** and **learned behavior** rather than intuition.

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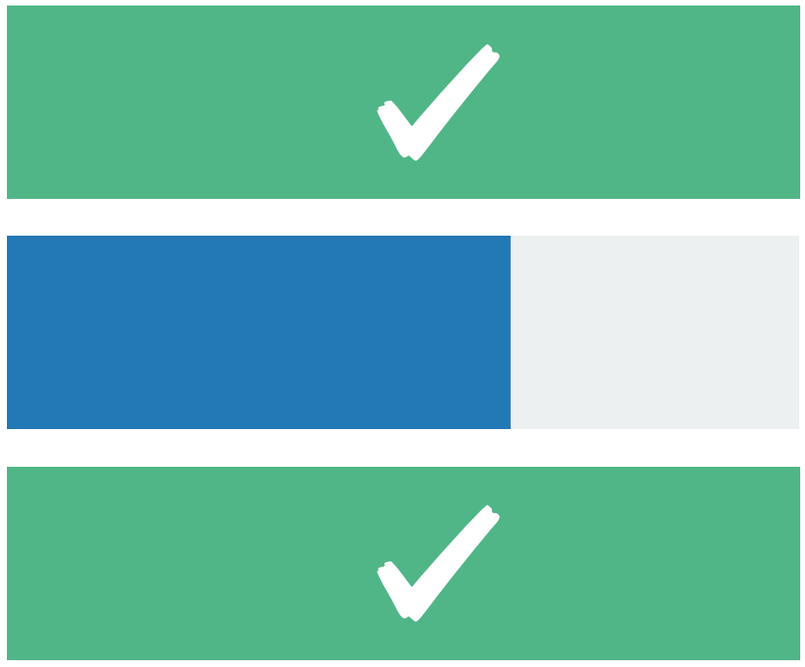
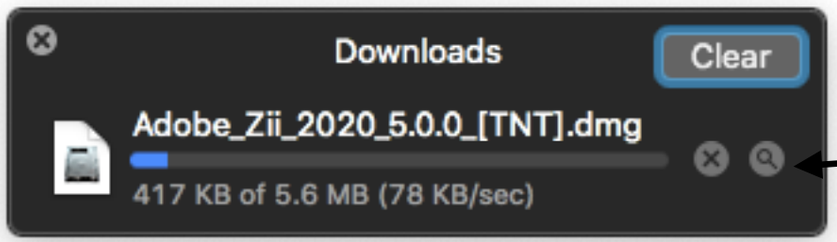
Zeigarnik Effect

- **People remember incomplete/ interrupted tasks better than completed tasks**

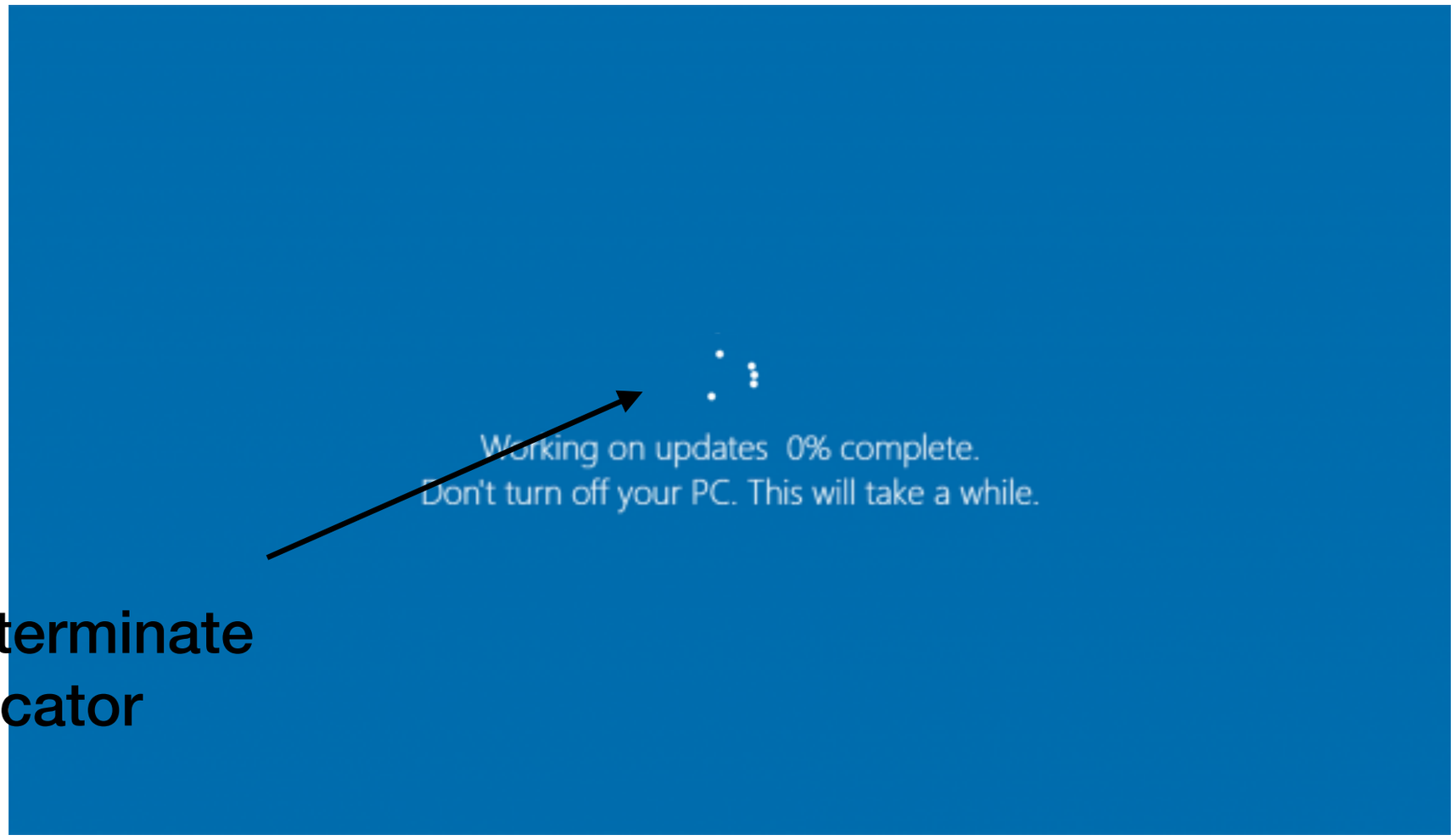
- In the 1920s Bluma Wulfovna Zeigarnik conducted a study on memory, in which she compared memory in relation to incomplete and complete tasks.

- She had found that incomplete tasks are easier to remember than successful ones. This is now known as the Zeigarnik effect.





Determinate indicator



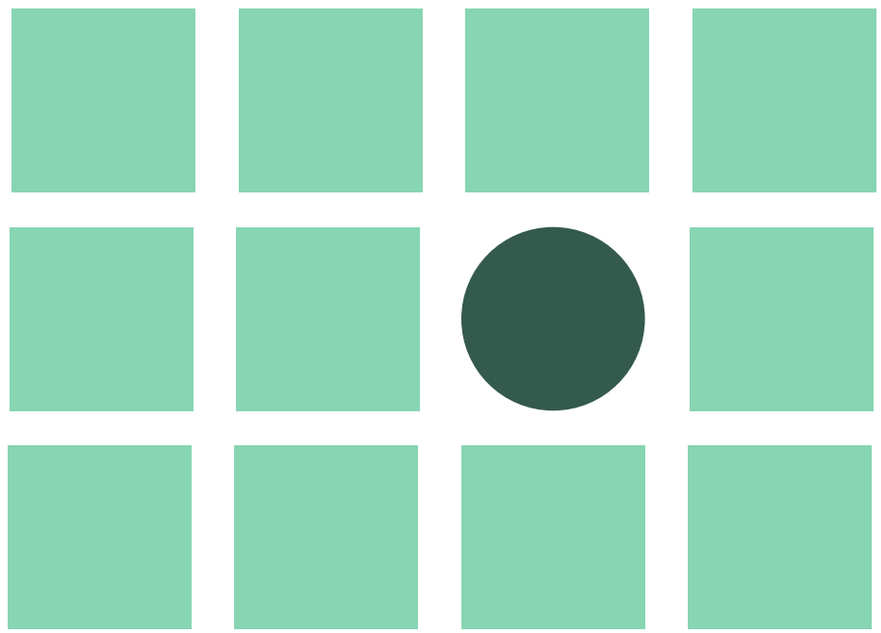
Non-determinate indicator

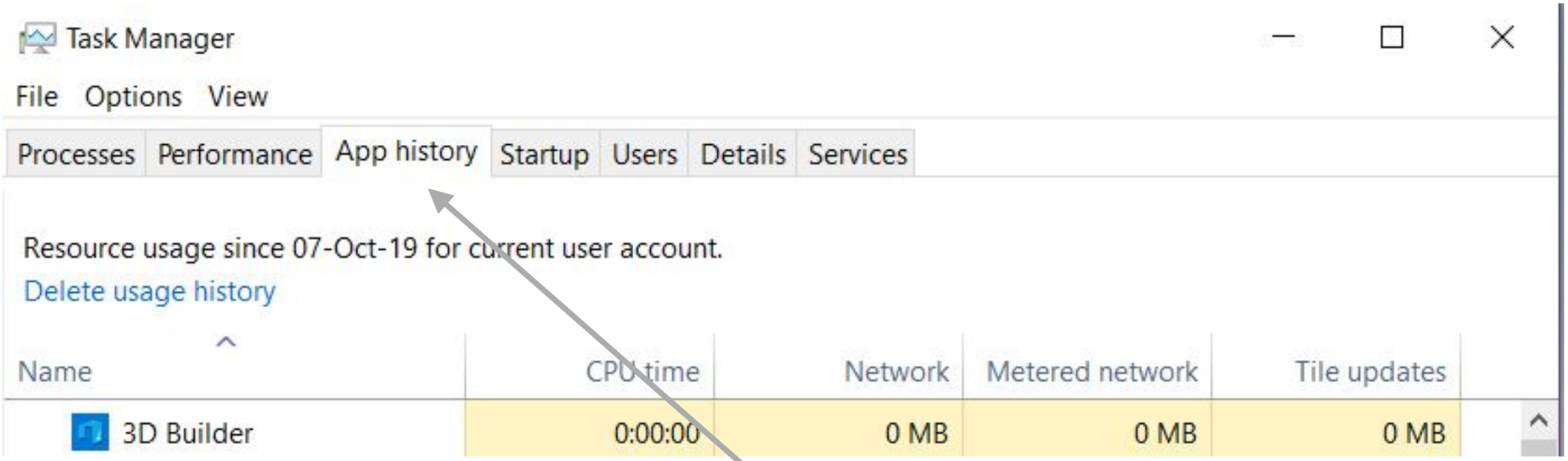
Contents

Von Restorff Effect

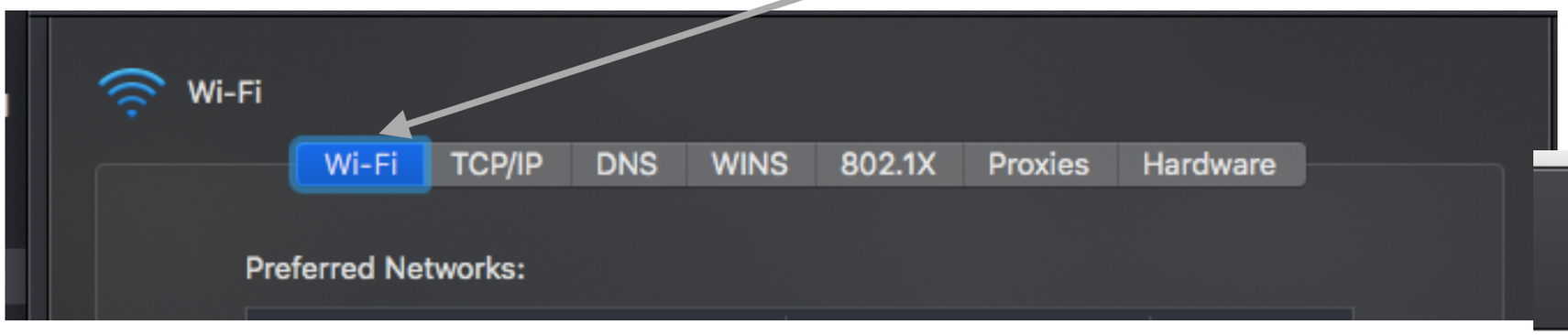
- **The one element that differs the most is remembered the most**

- Critical buttons of screens must be different

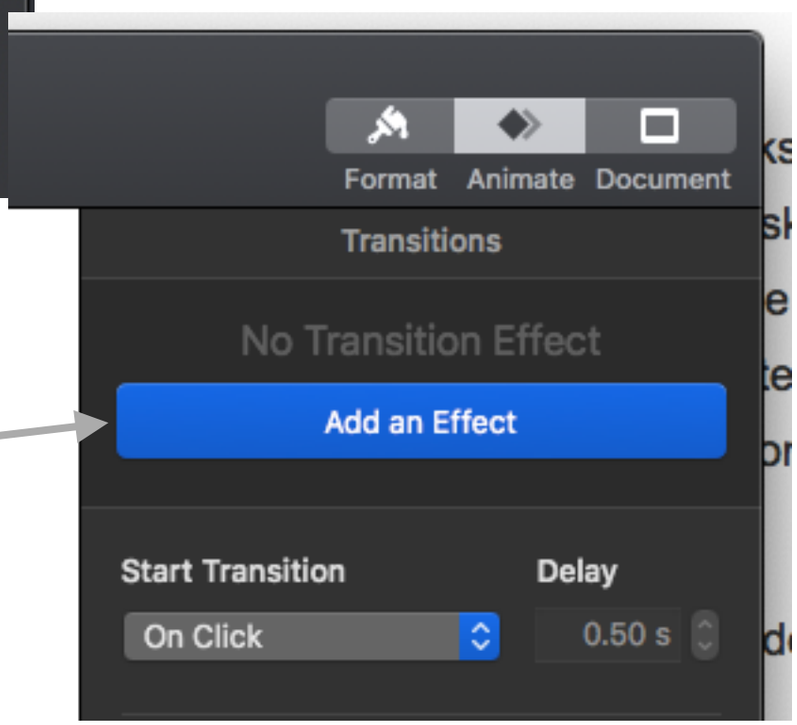




Selected Tab is highlighted



Critical buttons are different



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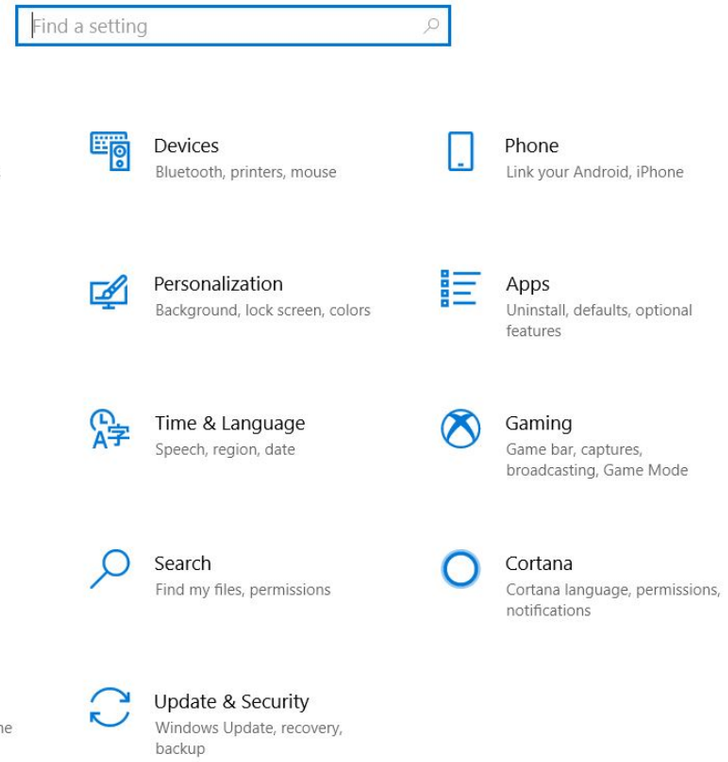
Tesler's Law

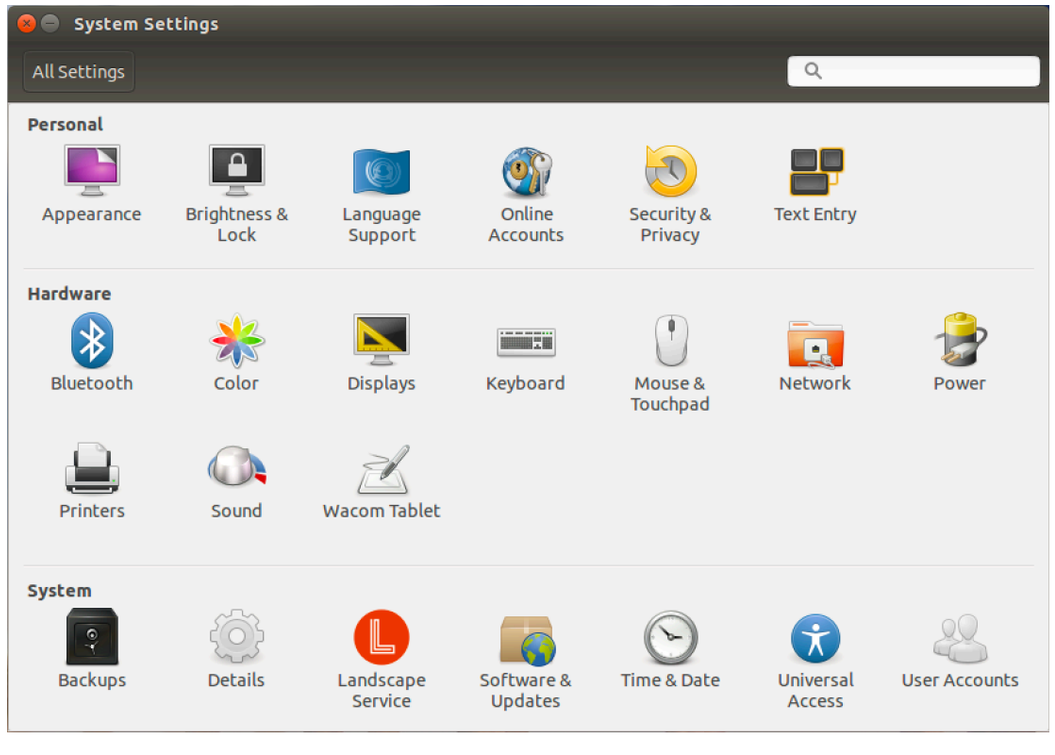
- **This law posits that any system has an minimum amount of complexity that cannot be removed**

- Beyond this threshold, any removal leads to feature regression

- Developed at Xerox PARC by **Larry Tesler**


Find a setting
System
Display, sound, notifications, power
Devices
Bluetooth, printers, mouse
Phone
Link your Android, iPhone
Network & Internet
Wi-Fi, airplane mode, VPN
Personalization
Background, lock screen, colors
Apps
Uninstall, defaults, optional features
Accounts
Your accounts, email, sync, work, family
Time & Language
Speech, region, date
Gaming
Game bar, captures, broadcasting, Game Mode
Ease of Access
Narrator, magnifier, high contrast
Search
Find my files, permissions
Cortana
Cortana language, permissions, notifications
Privacy
Location, camera, microphone
Update & Security
Windows Update, recovery, backup


System Preferences
Search
General
Desktop & Screen Saver
Dock
Mission Control
Language & Region
Security & Privacy
Spotlight
Notifications
Displays
Energy Saver
Keyboard
Mouse
Trackpad
Printers & Scanners
Sound
Startup Disk
iCloud
Internet Accounts
Software Update
Network
Bluetooth
Extensions
Sharing
Users & Groups
Parental Controls
Siri
Date & Time
Time Machine
Accessibility
Mouse Fix
Xbox 360 Controllers


System Settings
All Settings
Personal
Appearance
Brightness & Lock
Language Support
Online Accounts
Security & Privacy
Text Entry
Hardware
Bluetooth
Color
Displays
Keyboard
Mouse & Touchpad
Network
Power
Printers
Sound
Wacom Tablet
System
Backups
Details
Landscape Service
Software & Updates
Time & Date
Universal Access
User Accounts

Contents

Postel's Law

- **Postel's Law postulates that a designer must be liberal in what he accepts but be conservative in they send.**

- Any system should be adaptive enough to handle any variable input from the user and provide clear feedback

- This is also called the **Robustness Principle**

Invalid emails are allowed
to be entered
but checked for validity

Sign up

or sign in to your account

First name

Last name

coeb@akhjd.asd

Password

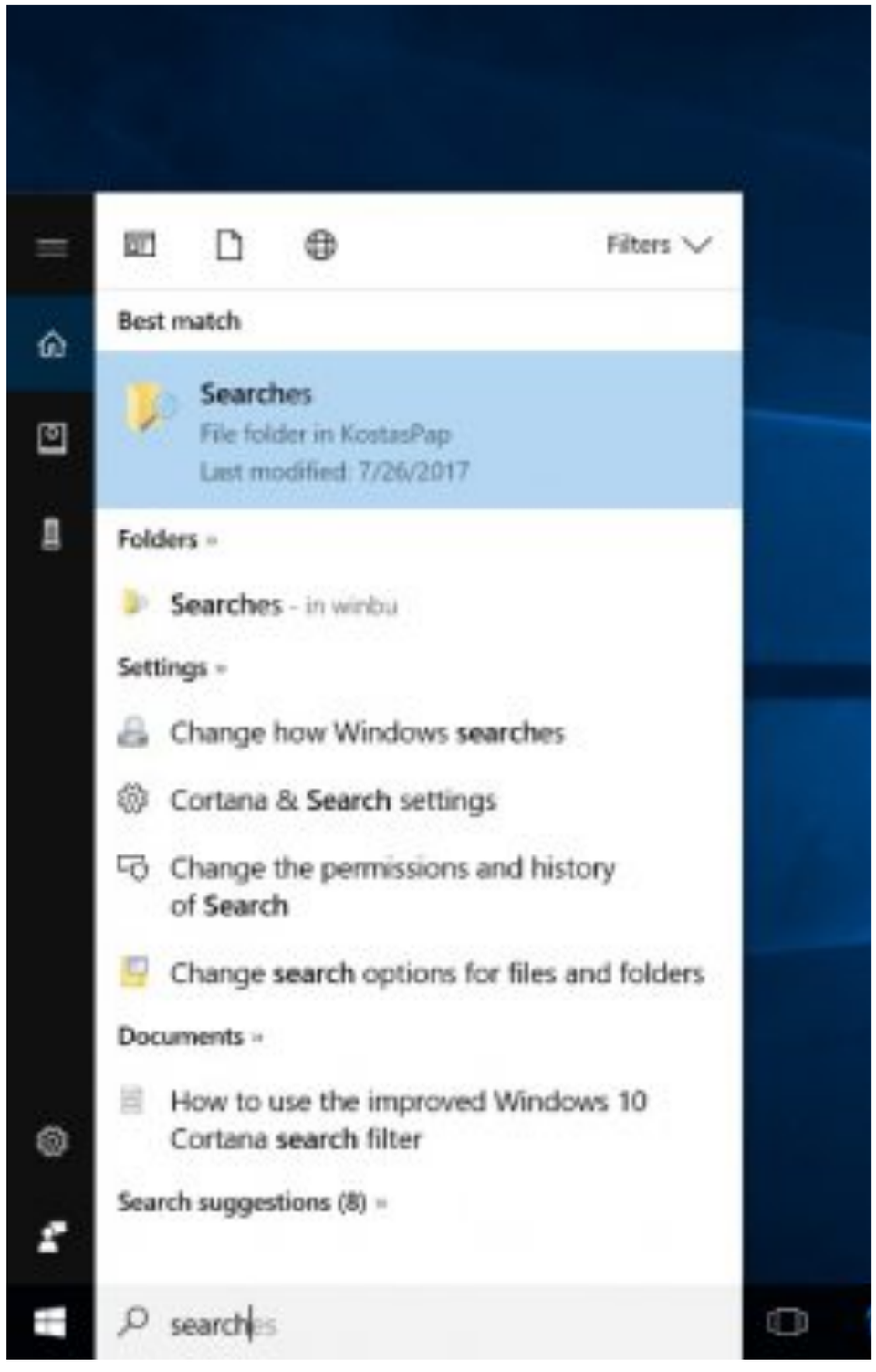
This page is protected by reCAPTCHA, and subject to the Google Privacy Policy and Terms of service.

I agree to the Dropbox Terms

Sign up

Sign up with Google

Sign up button is
appropriately disabled



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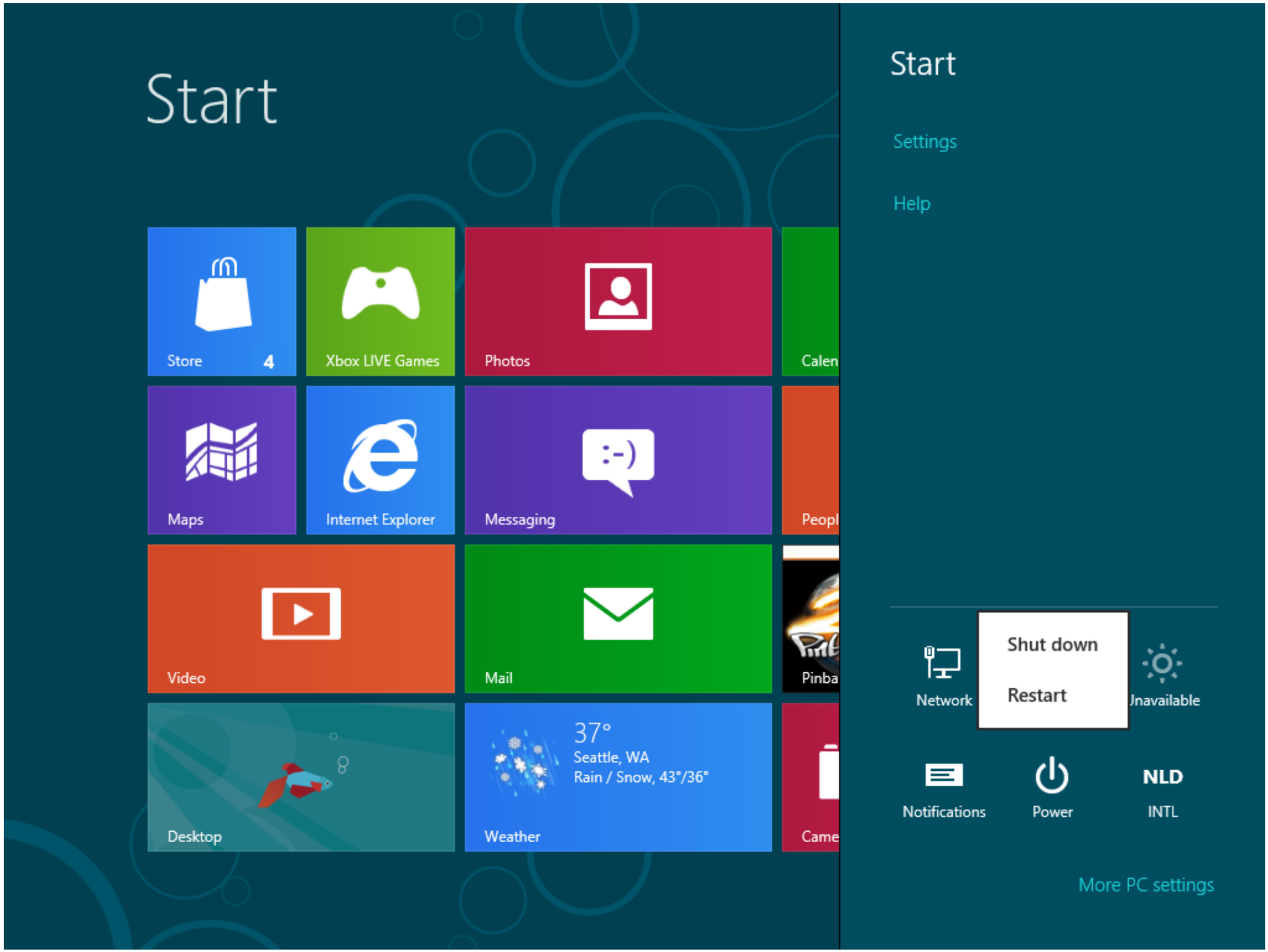
Peak-End Rule

- **Users primarily look at an experience based on how it was at the ‘peak’ and at the end.**
- Peaks are intense (positive/negative) experiences and the end of the experience stand out.

“Cognitive biases change the way we perceive and recall past experiences”

–Nielsen Norman Group


Start
Store 4
Xbox LIVE Games
Photos
Calen
Maps
Internet Explorer
Messaging
Peopl
Video
Mail
Pinba
Desktop
37°
Seattle, WA
Rain / Snow, 43°/36°
Weather
Came
Start
Settings
Help
Shut down
Restart
Network
Unavailable
Notifications
Power
NLD
INTL
More PC settings

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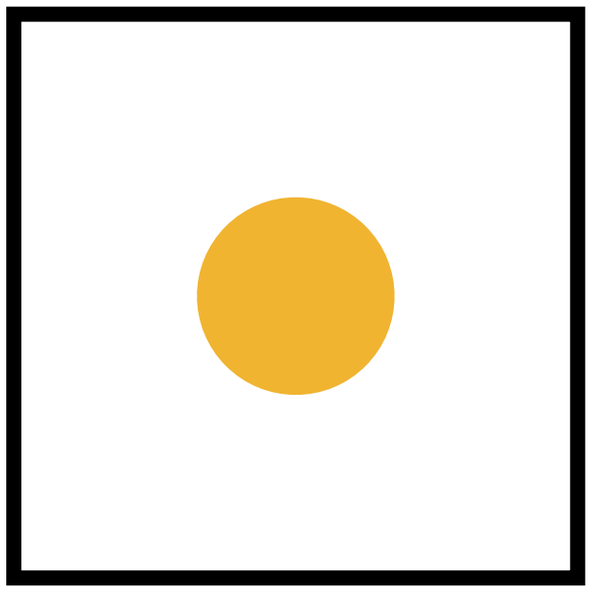
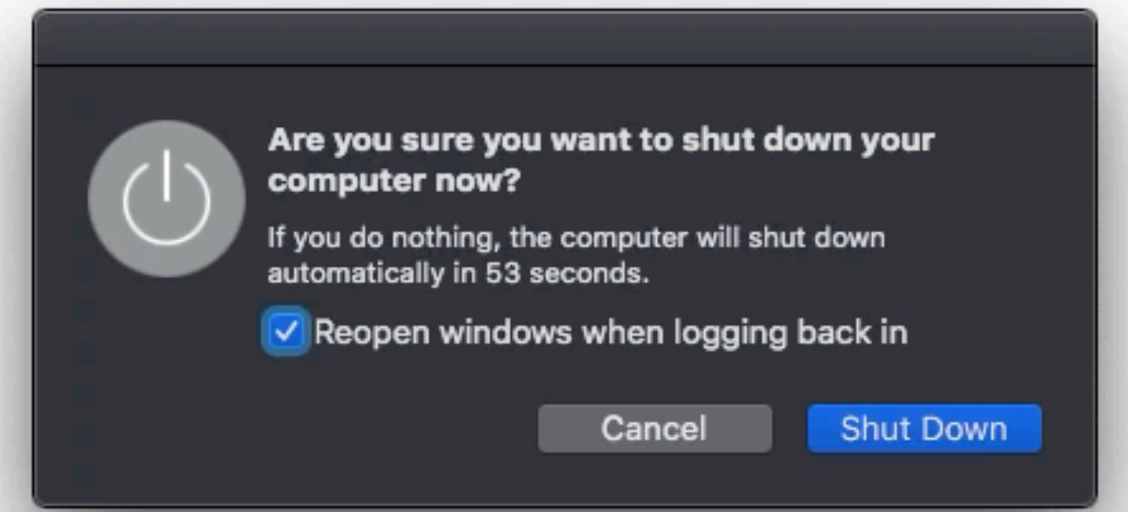
Parkinson’s Law

- **Any work expands until it takes up all the time allotted to it.**

- This adage was stated by Cyril Northcote Parkinson, in an Essay in the Economist




Are you sure you want to shut down your computer now?
If you do nothing, the computer will shut down automatically in 53 seconds.
Reopen windows when logging back in
Cancel
Shut Down


Activities
Settings
Thu Nov 7, 11:35 AM
Devices
Displays
Do you want to keep these display settings?
Settings changes will revert in 16 seconds
Revert Settings
Keep Changes
Removable Media
Thunderbolt
Wacom Tablet
Color
Scale
Night Light

Contents

Hick's Law

- **The time to take a decision increases with**
  - **Number of choices**
  - **Complexity of choices**
- Complex tasks have to be broken down into bite-sized pieces for simplification for the user.
- Highlight recommended choices and simplify the choice making process

Previous | Ready to go | Done

You're ready to go!

You can use “Software” to install apps like these:

Visual Studio Code, Skype, Slack, PyCharm CE, Android Studio

IDEA Community, Krita, Plex Media Server, VLC, GitKraken

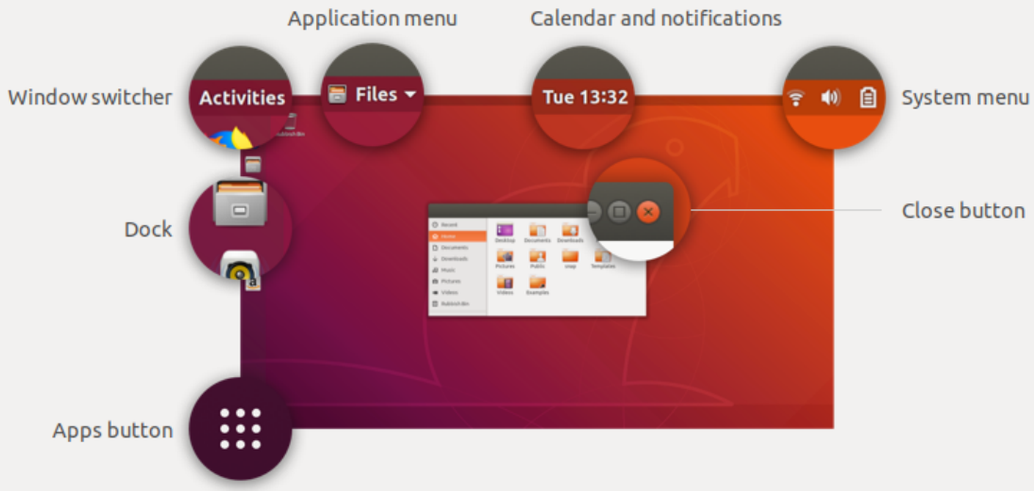
Discord, hiri, Bitwarden, Simplenote, Zenkit

Open “Software” now

What's new in Ubuntu | Next

What's new in Ubuntu

Ubuntu 18.04 works differently from older versions.



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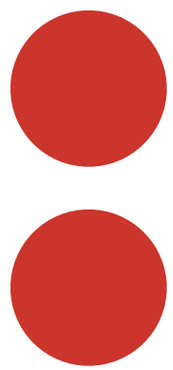
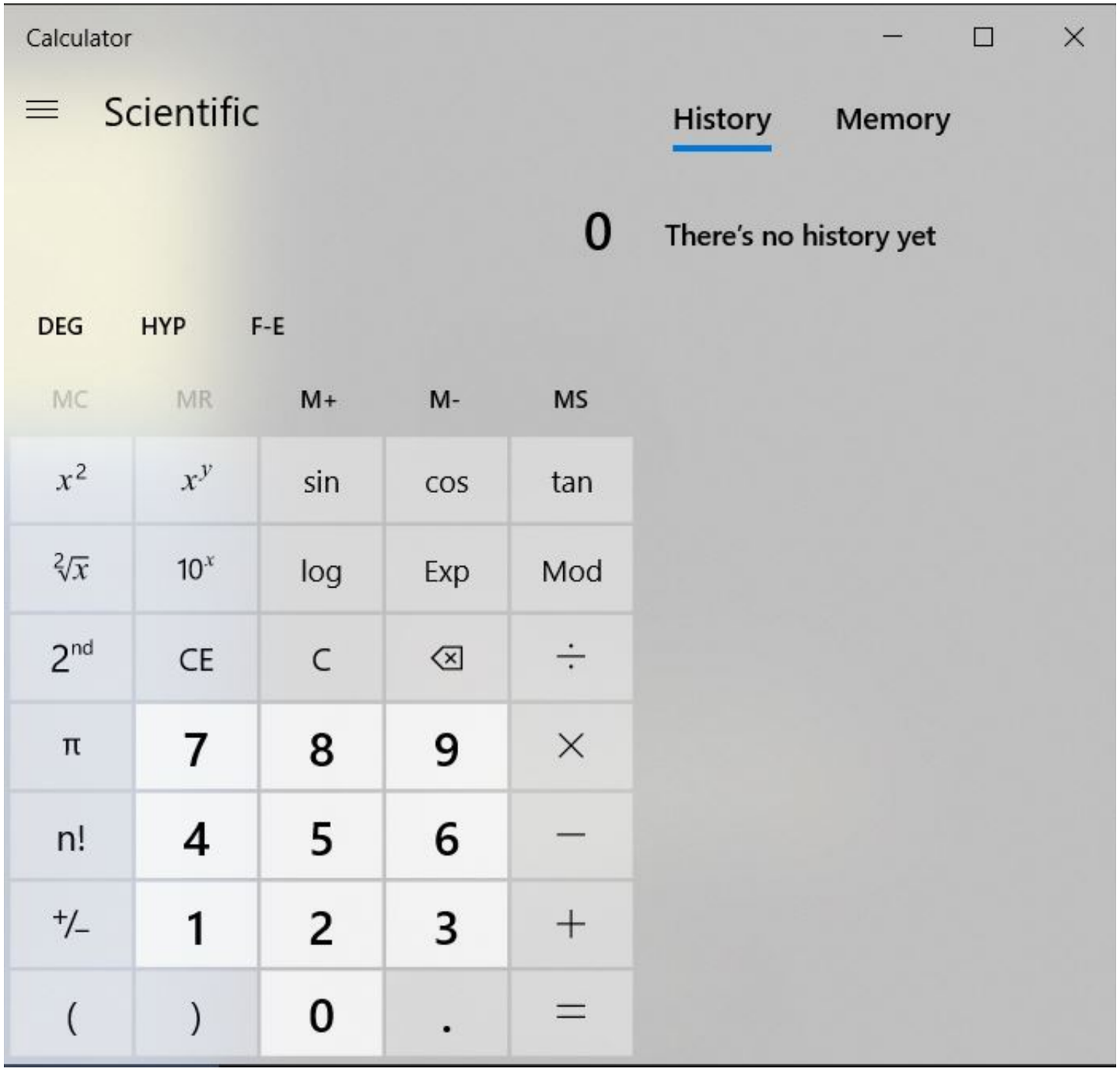
Doherty Threshold

- **Doherty Threshold states that productivity is improved when computers and their users interact at a pace where one doesn't have to wait for the other**

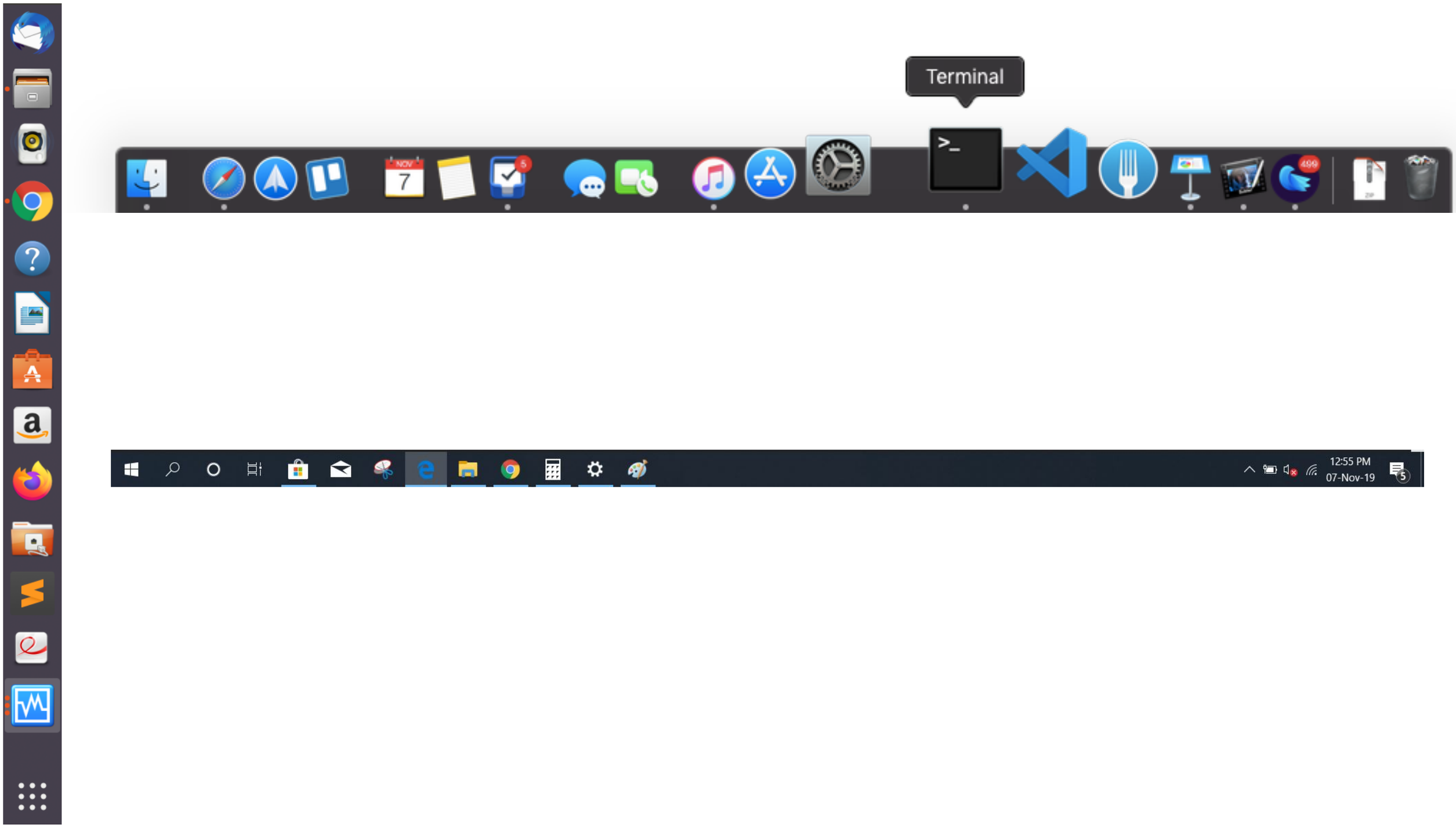


- Thus, an Operating System has to be low latency, and should seamlessly let the user focus on his work

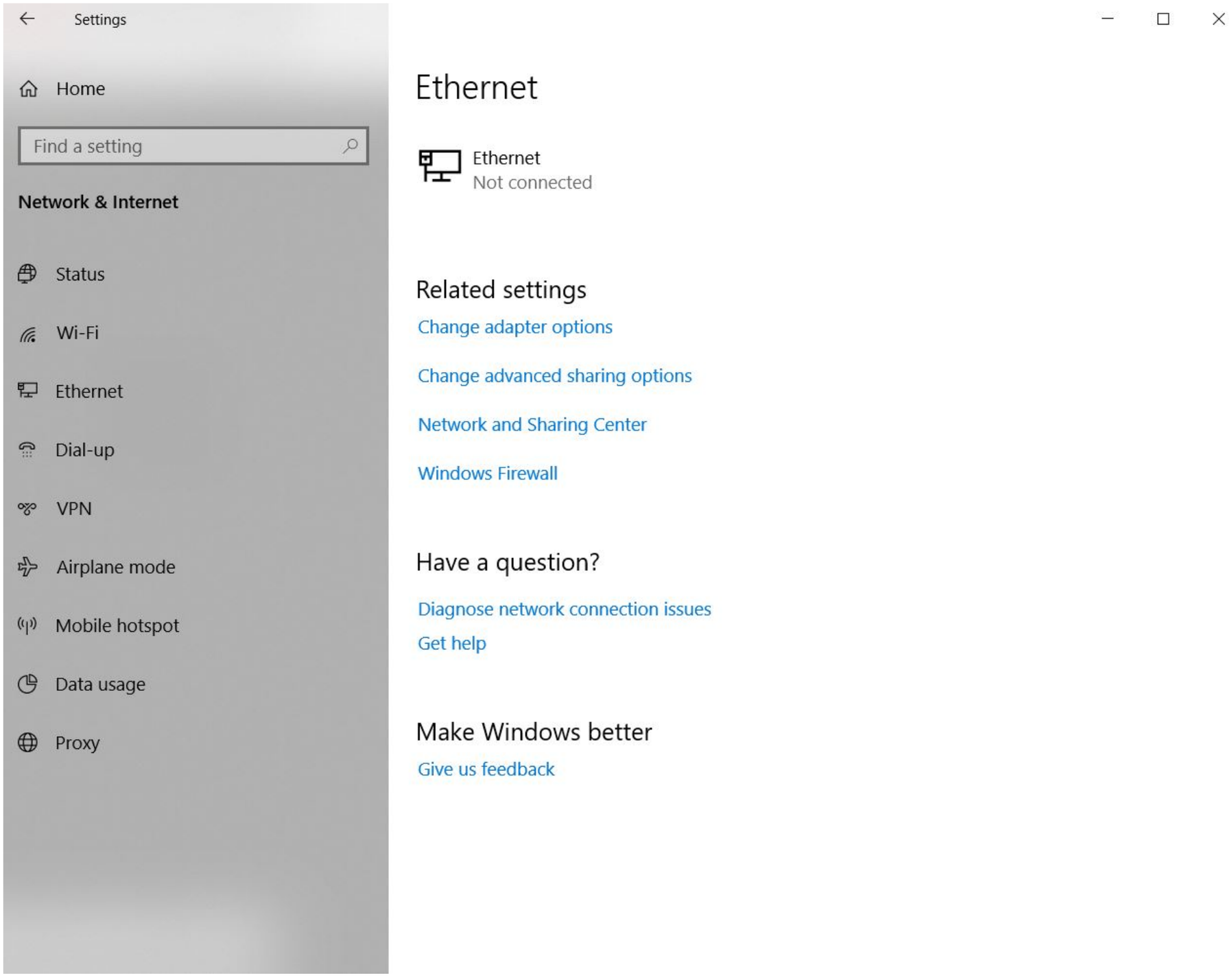
Aesthetic Usability Effect



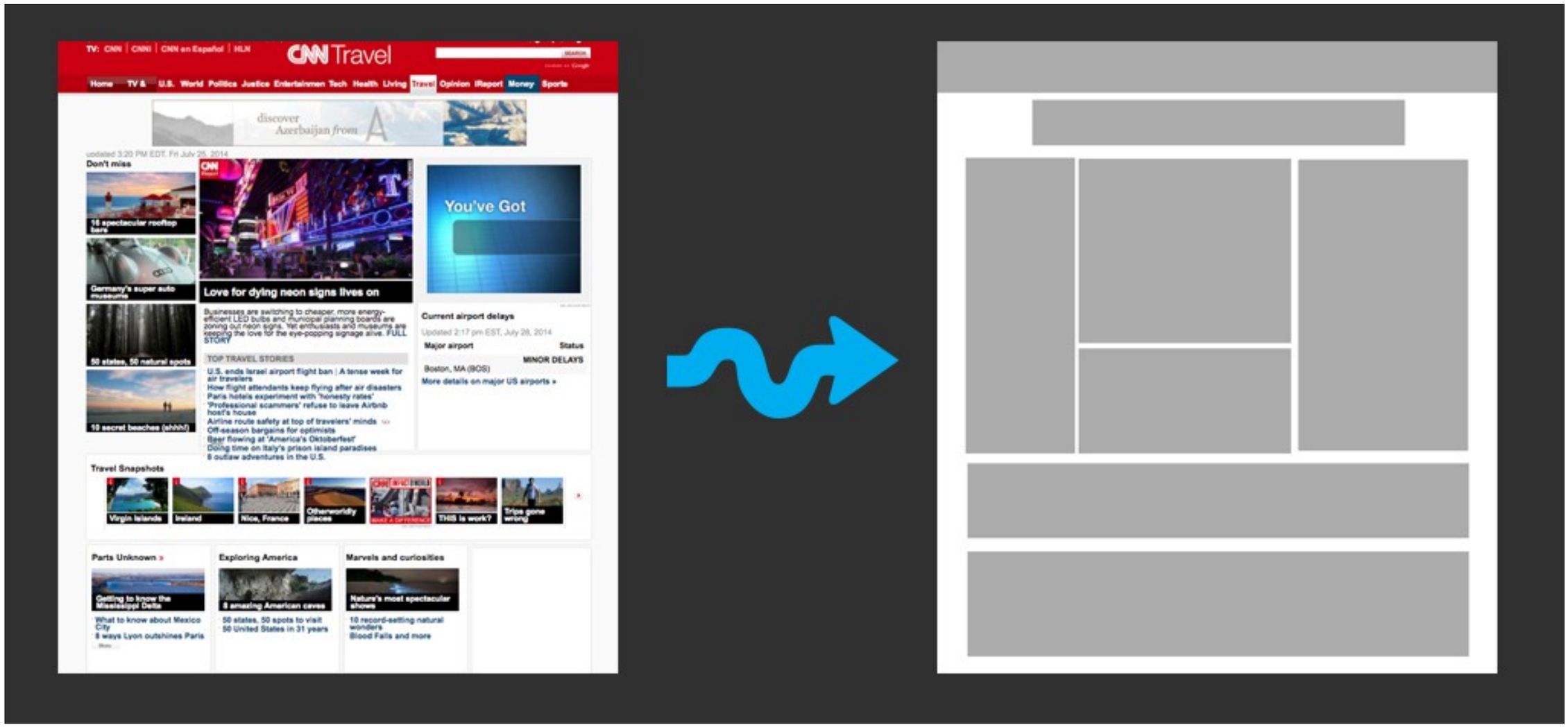
Fitt's Law



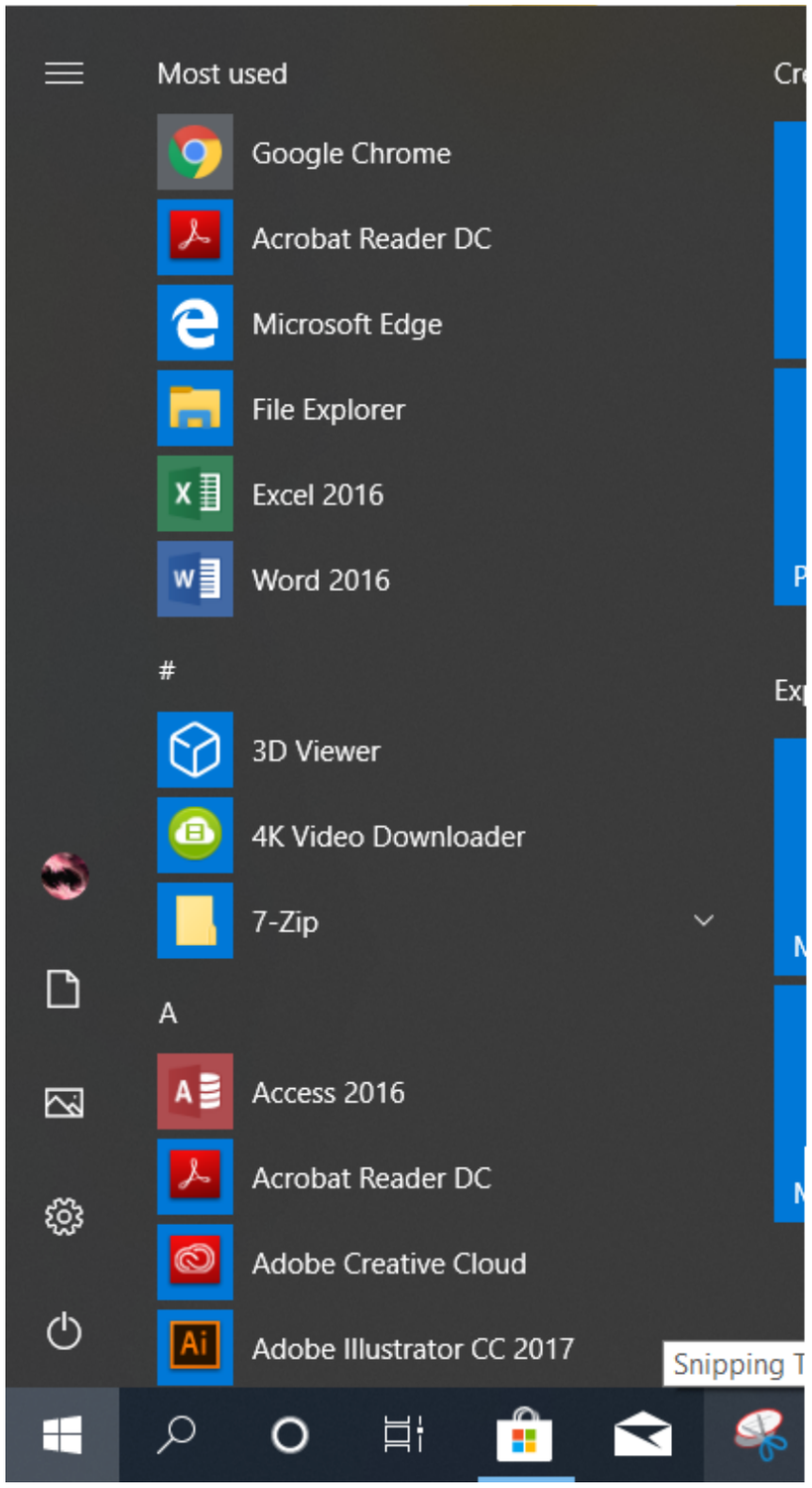
Law of Common Region



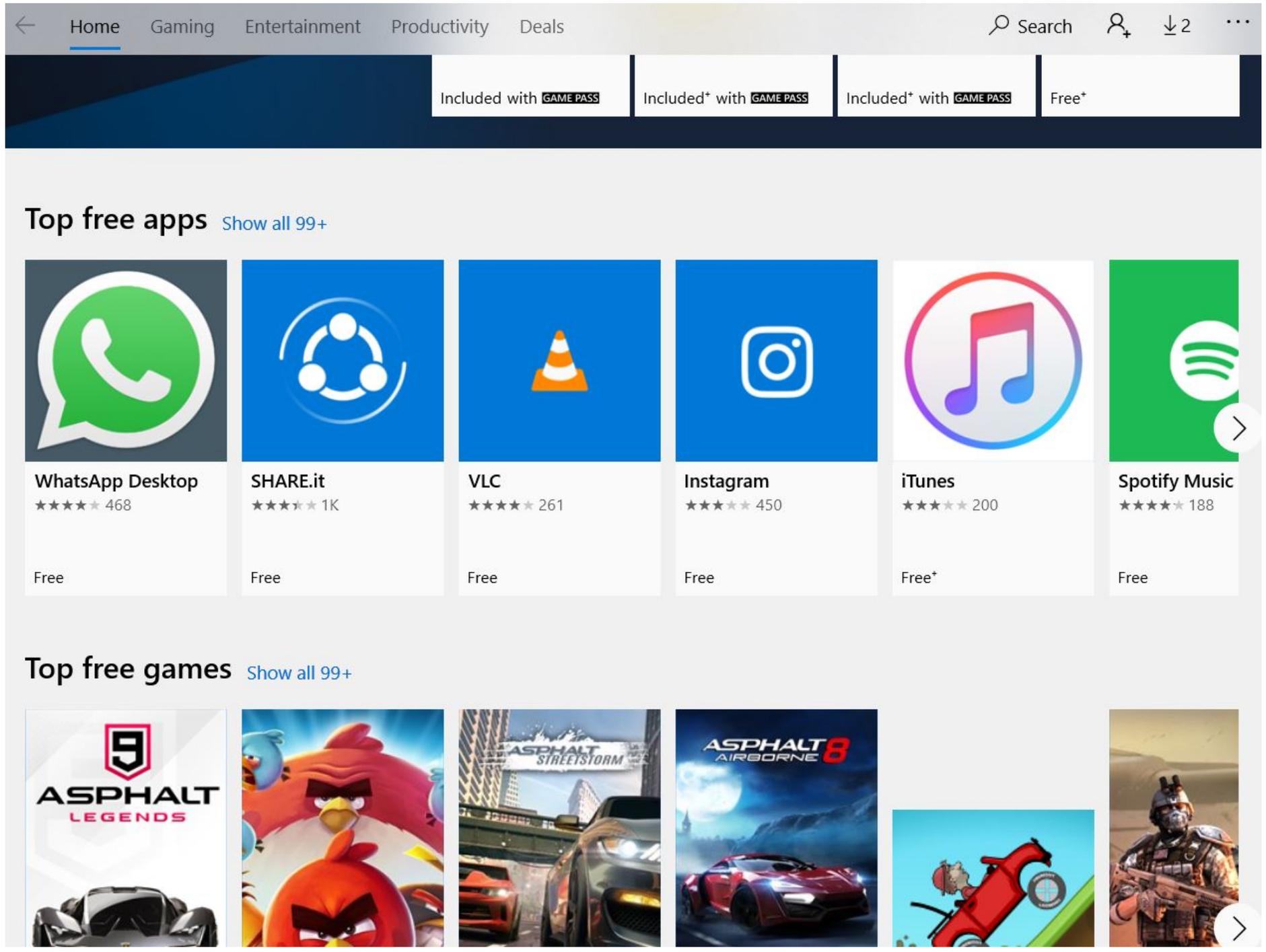
Law of Prägnanz



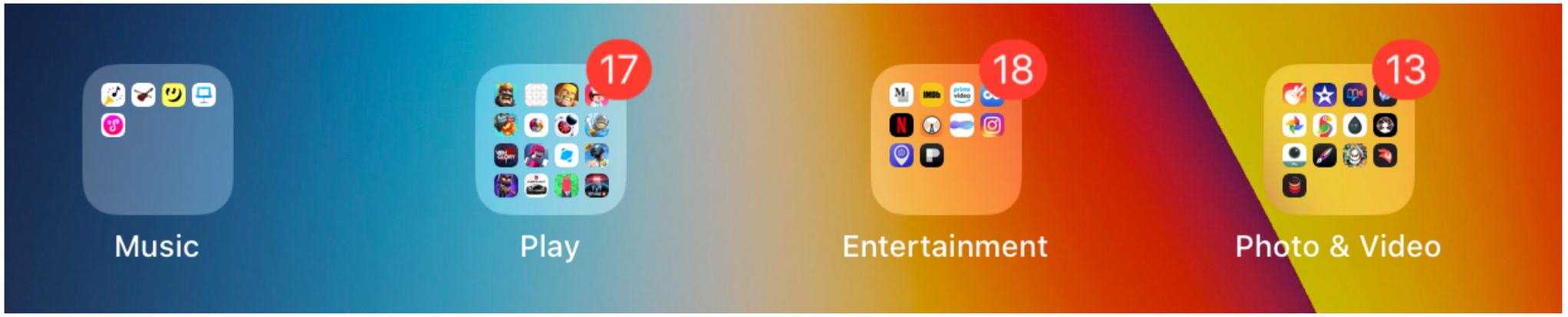
Law of Proximity



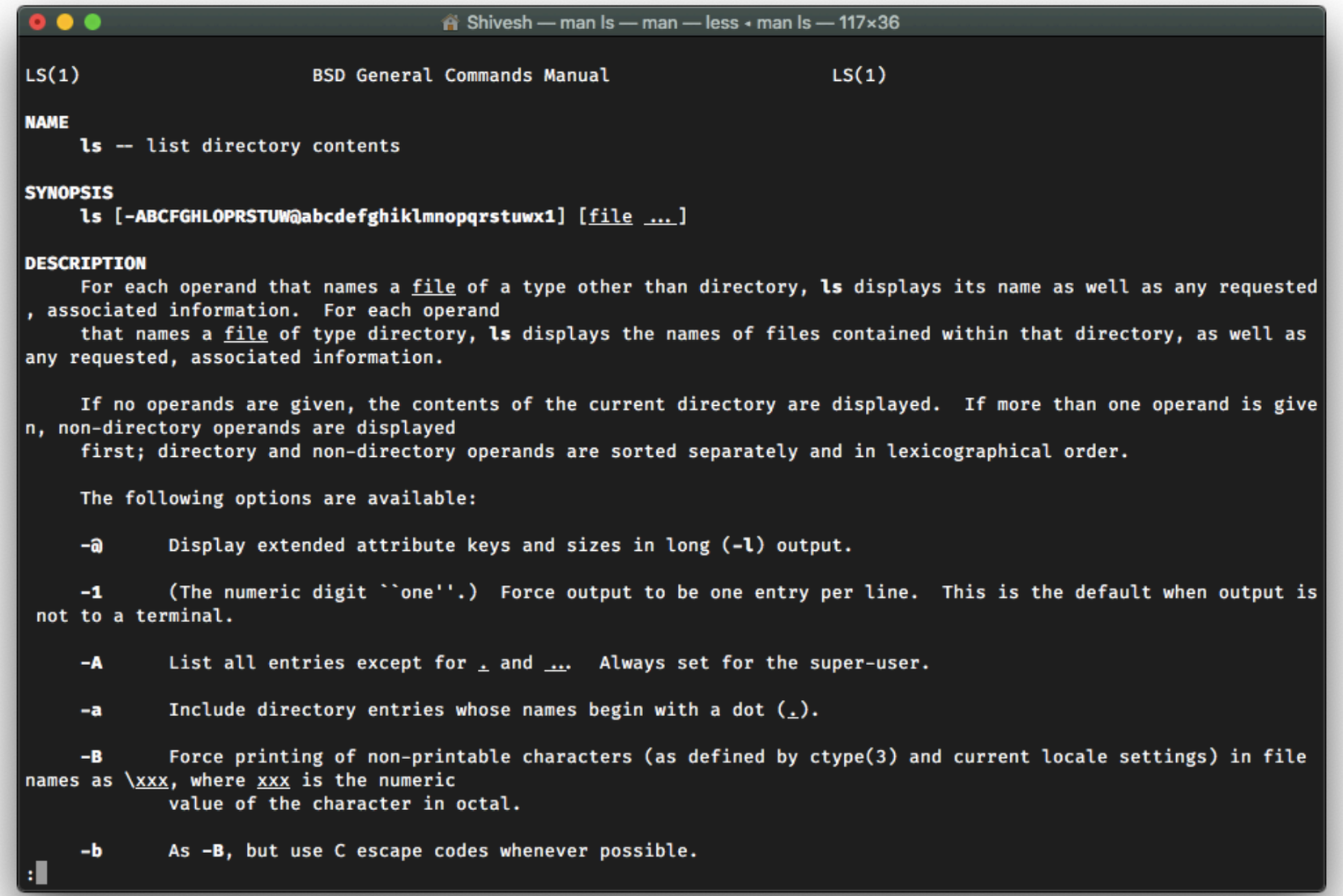
Law of Similarity



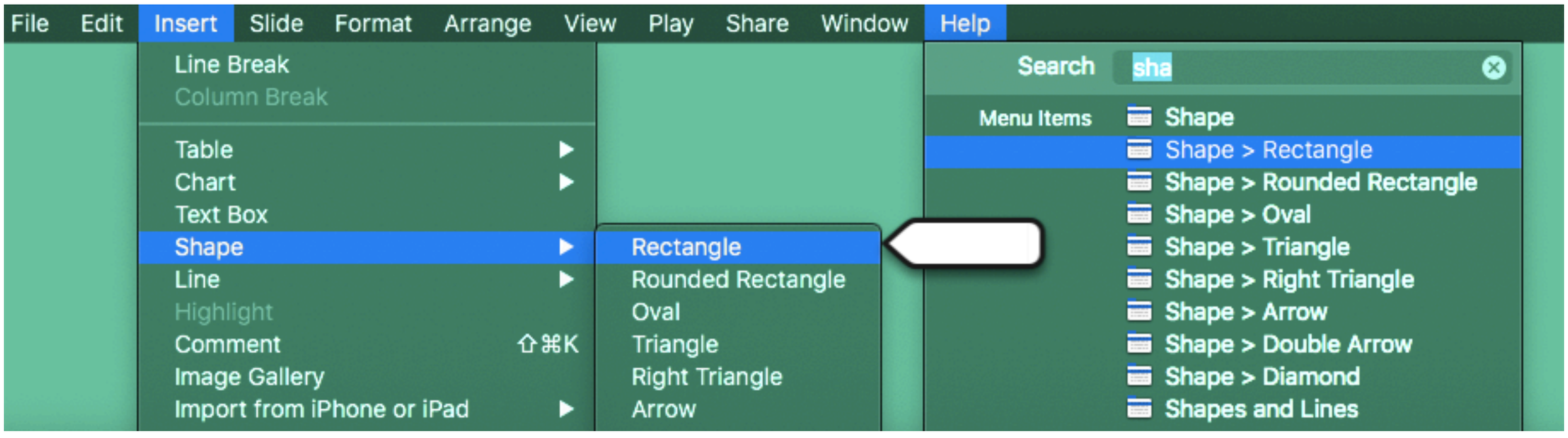
Law of Uniform Connectedness



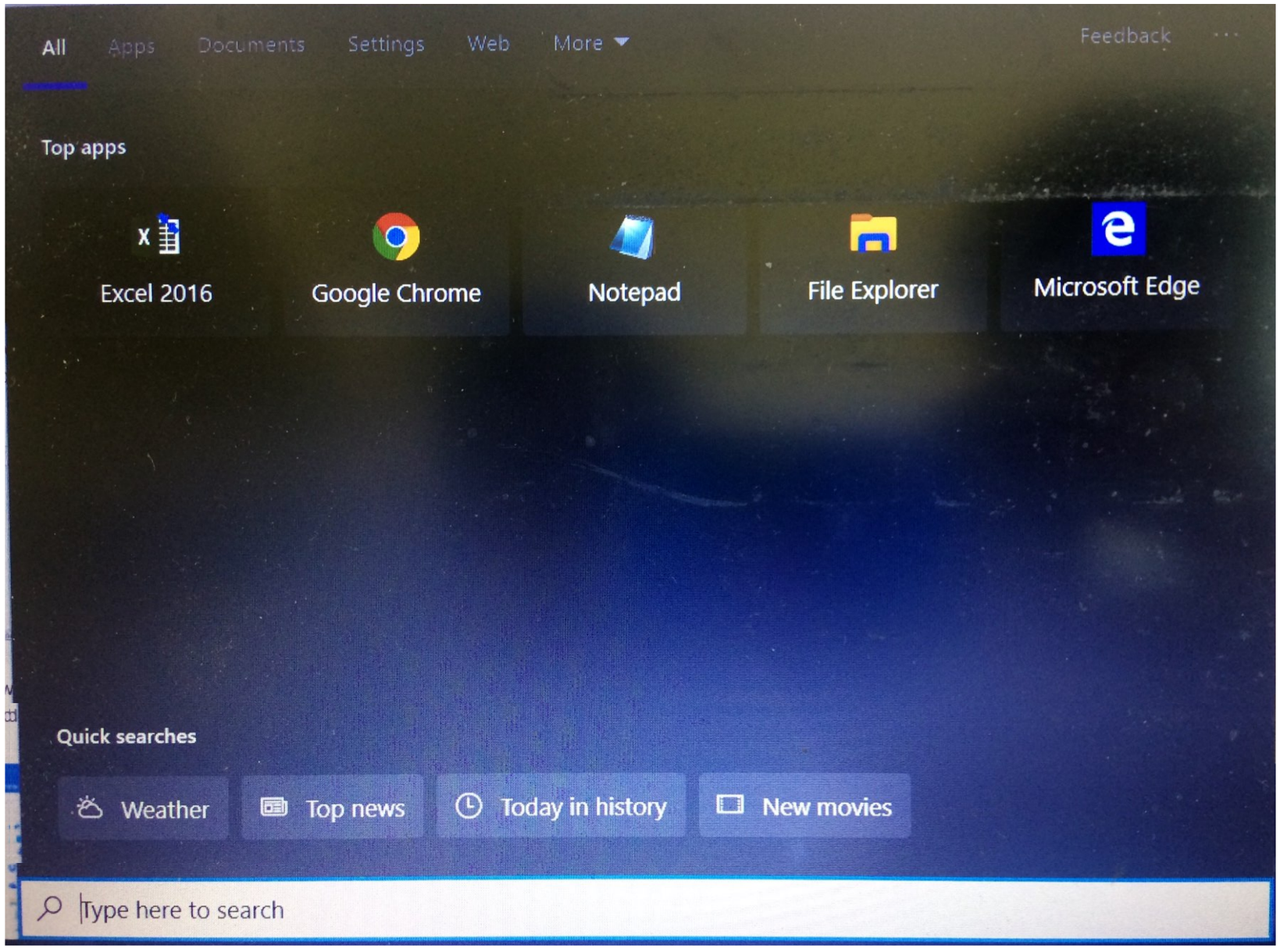
Miller’s Law


Shivesh — man ls — man — less ◂ man ls — 117×36
LS(1) BSD General Commands Manual LS(1)
NAME
ls -- list directory contents
SYNOPSIS
ls [-ABCFGHLOPRSTUW@abcdefghiklmnopqrstuwx1] [file ...]
DESCRIPTION
For each operand that names a file of a type other than directory, ls displays its name as well as any requested
, associated information. For each operand
that names a file of type directory, ls displays the names of files contained within that directory, as well as
any requested, associated information.
If no operands are given, the contents of the current directory are displayed. If more than one operand is give
n, non-directory operands are displayed
first; directory and non-directory operands are sorted separately and in lexicographical order.
The following options are available:
-@ Display extended attribute keys and sizes in long (-l) output.
-1 (The numeric digit ``one''.) Force output to be one entry per line. This is the default when output is
not to a terminal.
-A List all entries except for . and .. Always set for the super-user.
-a Include directory entries whose names begin with a dot (.).
-B Force printing of non-printable characters (as defined by ctype(3) and current locale settings) in file
names as \xxx, where xxx is the numeric
value of the character in octal.
-b As -B, but use C escape codes whenever possible.
:

Occam's Razor



Pareto Principle



Thank You