Operating System Diagnostics

Specifications and Requirements

ICTSAS308

Contents

- *Define* requirements in the context of ICT systems

- *Examine* specifications for hardware and software

- *Investigate* specifications/requirements for ICT systems

- *Research* some examples

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What are requirements?

- Requirements are essential to the correct operation of something else
  - A description for *something needed*

- *Requirements* are used as product development inputs
  - Customer needs
  - Organisational need
  - Hardware needs
  - Existing integration needs

Standards

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Stakeholder requirements

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Use Cases

↓

System requirements

↓

Test Cases

↓

Deployment
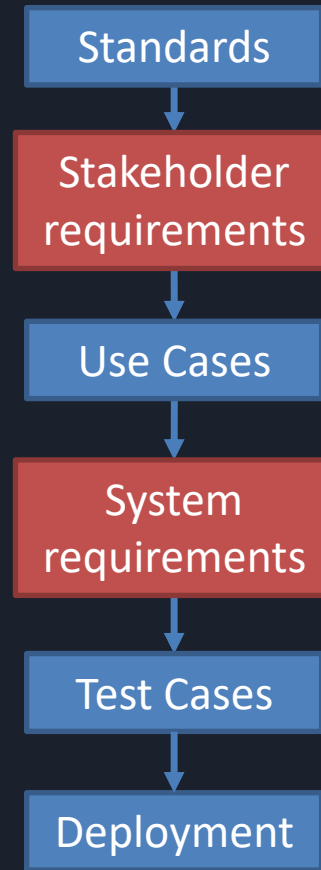
Product Development Lifecycles

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What are requirements?

- Each requirement should be:
    - Cohesive/Atomic: Address *one thing* only
    - Complete: *Fully stated* with no missing information
    - Consistent: *No contradictions* with other requirements
    - Current: Should *not be obsolete*
    - Unambiguous: *No jargon/complexity* that may cause confusion
    - Importance/Priority: Sometimes requirements are *prioritised*
    - Verifiable: The implementation of requirement *can be tested*

What are specifications?

- A specification is a technical requirement
  - *Explicitly states* the technical details of an ICT system

- Example specifications:
  - Min/Recommended hardware to *run a game*
  - Hardware requirements to *connect to a device*
  - Software drivers required to *service an app*
  - Network requirements to *service a web-server*

SYSTEM REQUIREMENTS

Windows | Mac OS X | SteamOS + Linux

MINIMUM:
OS: Windows Vista or greater
Processor: 2 Ghz
Memory: 2 GB RAM
Graphics: 256 mb video memory, shader model 3.0+
DirectX: Version 10
Storage: 500 MB available space

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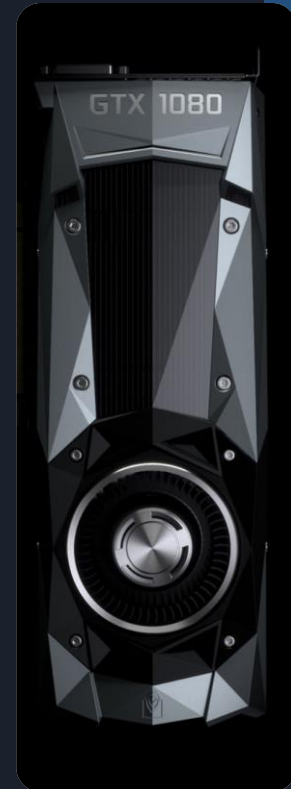
Requirements vs Specifications

- A *requirement* dictates what a product *should do*

- A *specification* details what a product *does & how*

- Specifications *describe details* for completed products

- Both are *heavily used* in engineering and product development

- We must ensure *all specifications and requirements* are considered when *performing maintenance* or using *diagnostic tools*

GeForce GTX 1650	
Architecture	**Turing Shaders**
Boost Clock	**1665 MHz**
Frame Buffer	**4 GB GDDR5**
Memory Speed	**8 Gbps**

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Hardware Specifications (Example)

- **Graphics Card** – Nvidia GEFORCE GTX1080

Specifications	
Base Clock Speed	1607MHz
Memory Capacity	8 GB GDDR5X
Bus	PCIe 3.0
Maximum Digital Resolution	7680x4320 @ 60Hz
VR Ready	Yes
DirectX	12 API with feature level 12_1
Vulcan API	Yes
OpenGL	4.5

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Hardware Requirements (Example)

- Graphics Card – Nvidia GEFORCE GTX1080

| Requirements	
OS Certification	Windows 7-10[1], Linux, FreeBSDx86
Graphics Card Power	180 Watts
NB: Windows 10	Requires November 2015 update or newer

- See Nvidia website for more details
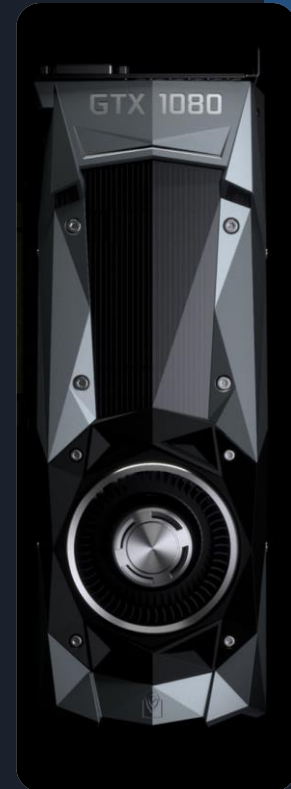
Windows 10 Backups (Example)

- Backup your Windows 10 files with "*File History*"

- *Requirements:*
  - An *external drive* or *network location* is **required**

  - The *destination* must be available for backups
   - Or a new destination to be selected via settings
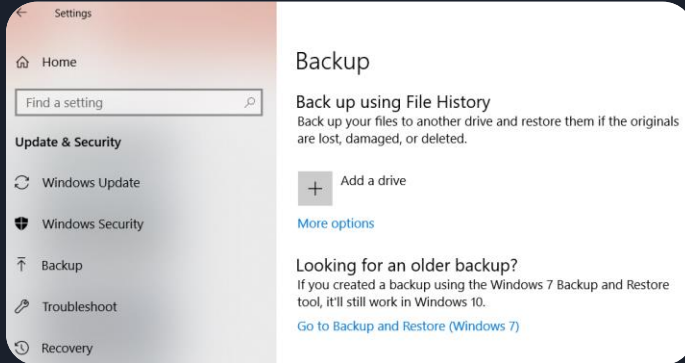
Windows 10 Backups (Example)

- *Specifications:*
  - *Specify* which files/folders to backup by *Excluding Folder Locations* in the settings

  - *Specify how often* to make backups & how long to store backups in the Advanced Settings
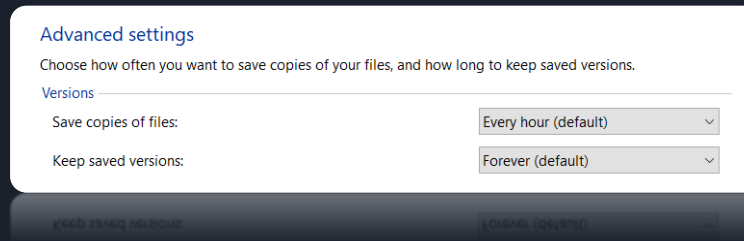
Windows 10 Backups (Example)

- To manage *Windows Backups* in Windows 10 go to:
  - **Start** > **Settings** > **Update & Security** > **Backup**

- More info available at <u>Windows Support</u>

- Note that Windows 7 & 8.1 use an older tool called Backup & Restore
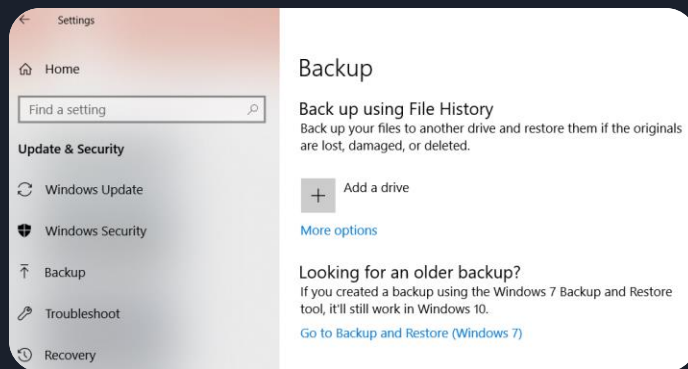
Summary

- We *investigated* how specifications & requirements relate to ICT systems, both hardware and software

- *Looked at* examples about graphics cards and managing system backups

References

- Wikipedia. 2019. Requirements. [ONLINE] Available at: https://en.wikipedia.org/wiki/Requirement#Characteristics_of_good_requirements. [Accessed 26 June 2019].

- Windows Support. 2019. Windows 10 Backup & Restore. [ONLINE] Available at: https://support.microsoft.com/en-us/help/4027408/windows-10-backup-and-restore. [Accessed 27 June 2019].

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