Creating service tutorials

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Jisc / EOSC Synergy / EOSC Future

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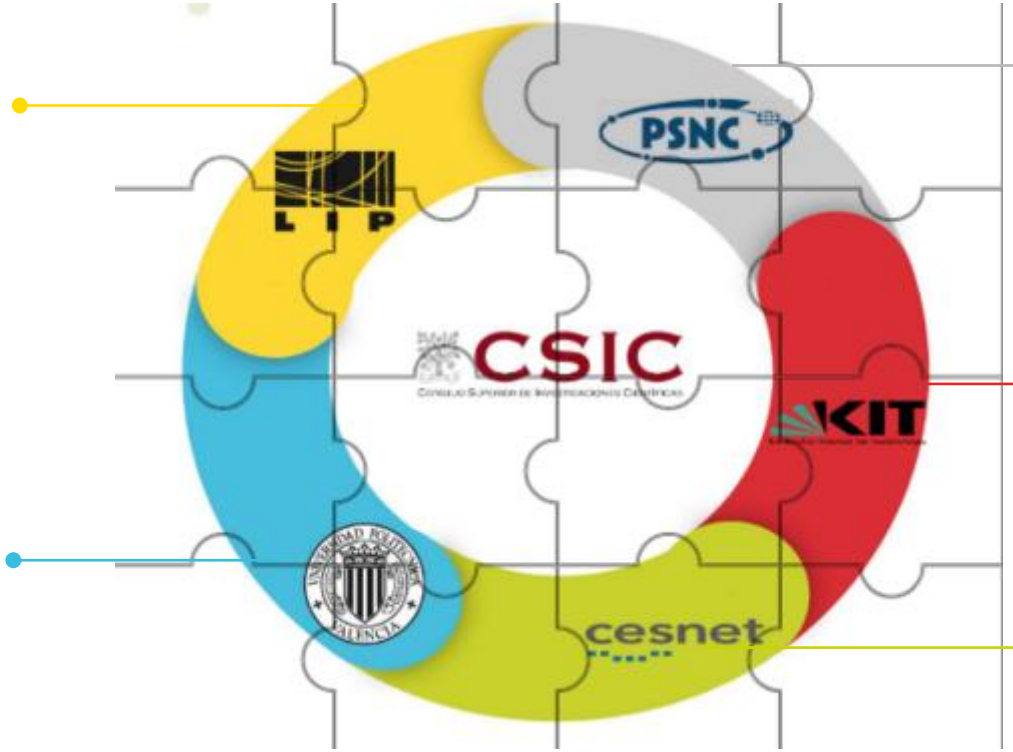
EOSC Synergy: implementing EOSC at the national level

Promoting EOSC High Quality Services

Software quality as a service, FAIRness evaluation and quality certification badges.

Thematic Services Integration

10 thematic services addressing 4 scientific areas (Earth Observation, Environment, Biomedicine and Astrophysics).



Skills development

Environment for online tutorials with a dedicated learning platform, advice on online course creation and delivery, an exemplar course, and a Hackathon as a service platform.

Capacity Expansion at the Infrastructure level

Integration of services and resources from the RIs of the consortium partners.

Alignment at the Policy Level

Collaboration with regional projects on landscaping activities, gap analysis and contribution to EOSC policies.

www.eosc-synergy.eu

Spain, Portugal, UK, Czech Republic, Germany, Slovakia, Poland and the Netherlands

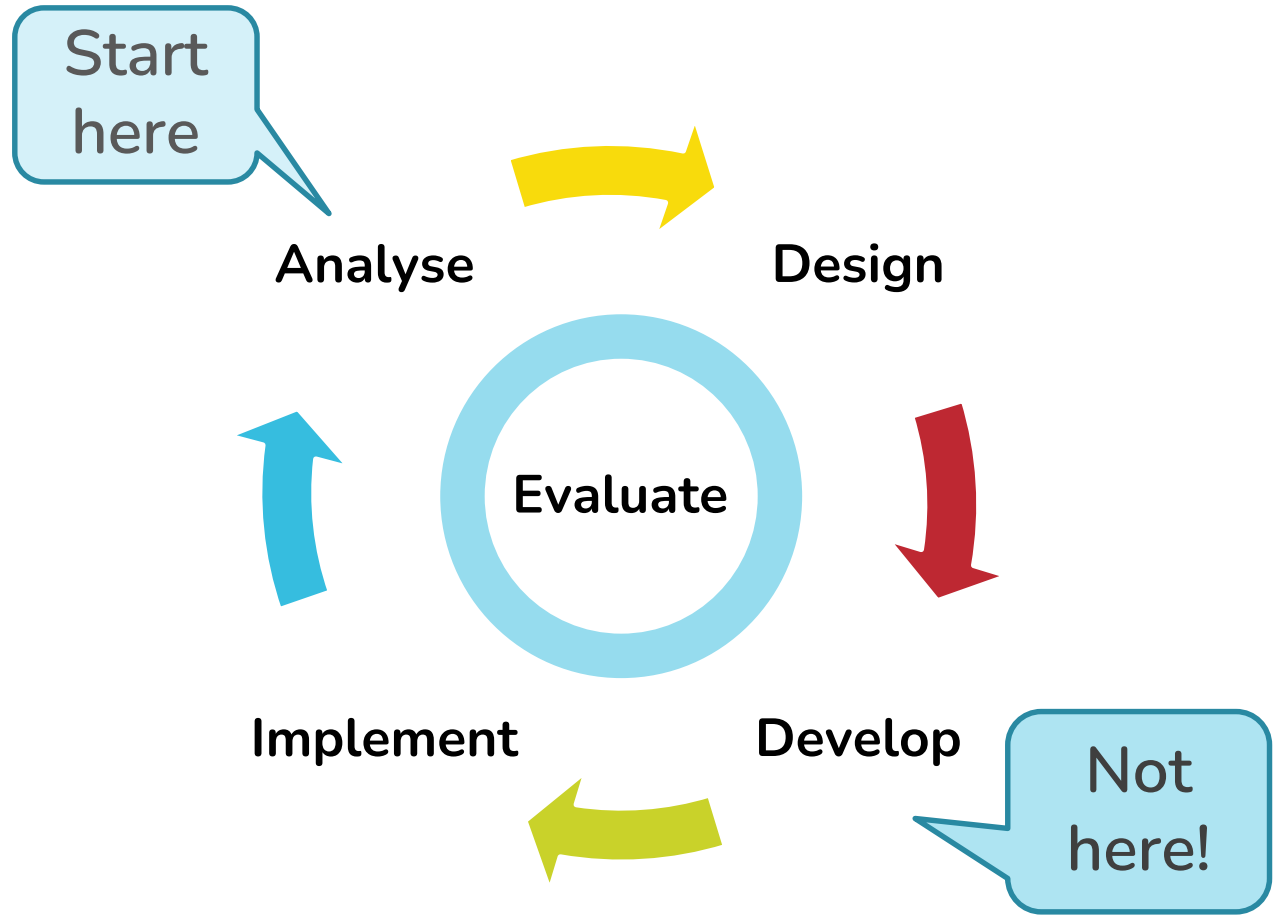
Documentation v tutorials

- Documentation includes different types of resource
  - Feature guides, tutorials, how-to guides, FAQs
  - Feature-focussed ‘How to use the X feature’
  - Task-focussed, might use several features

- Today, we focus on standalone independent learning online tutorials
  - Overview / informational tutorials
  - Step-by-step tutorials
  - General advice, not specific tools

Fundamentals

- Don’t jump straight into development
- The ADDIE model provides a framework
- User needs are central



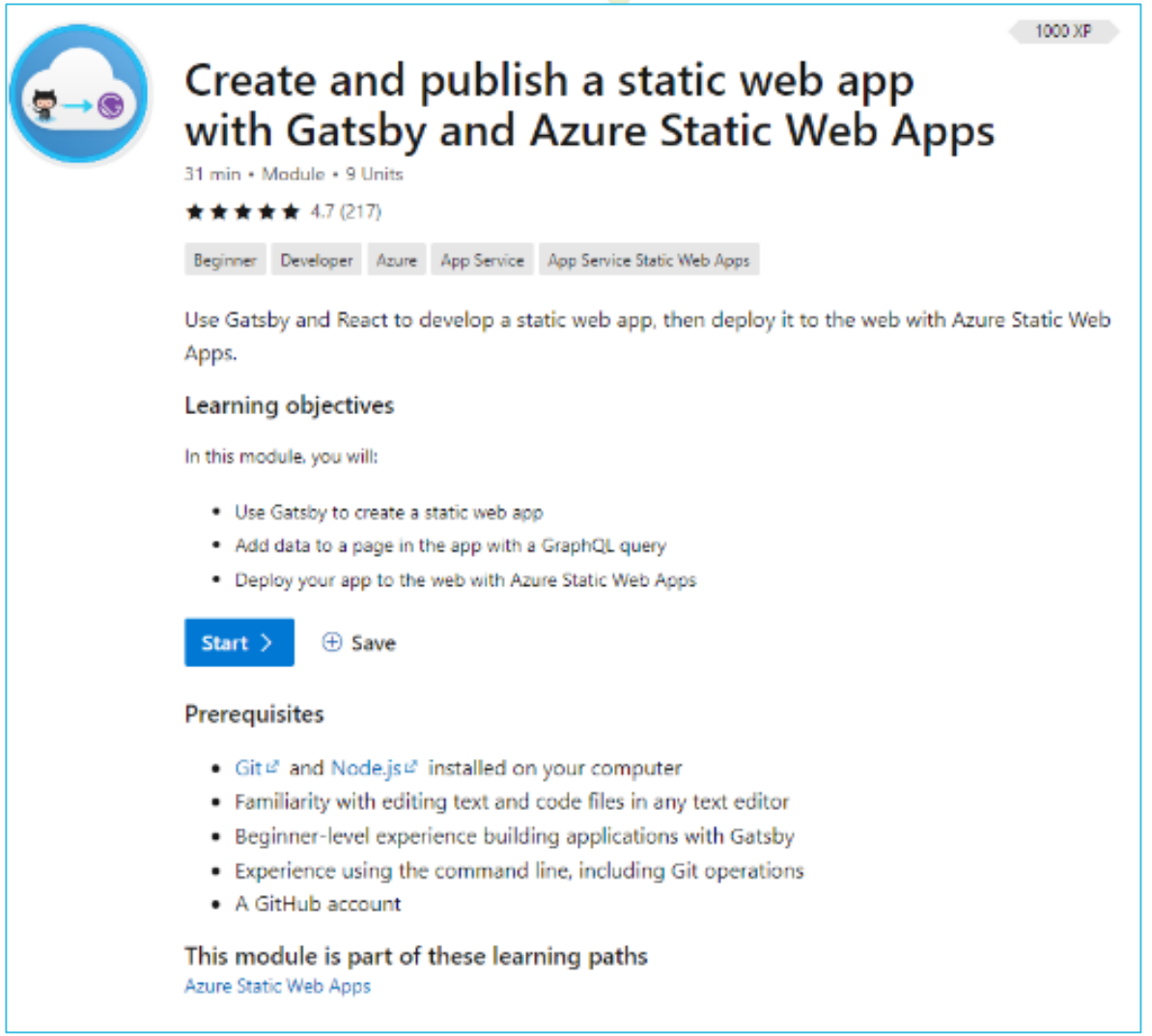
Planning and design

Who, what and why?

- Your audience
- Learning outcomes
- Topics to cover

Don’t make assumptions about

- Previous knowledge / experience
- Understanding what your service does and why it’s important



https://docs.microsoft.com/en-gb/learn/modules/create-deploy-static-webapp-gatsby-app-service/

1100 XP

Explore Azure database and analytics services

43 min • Module • 10 Units

★★★★★ 4.7 (42,118)

Beginner | Administrator | Developer | Solution Architect | Student | Azure | Cosmos DB | Data Lake | Databricks | HDInsight | SQL Database | Synapse Analytics

In this module, you'll learn about several of the database services that are available on Microsoft Azure, such as Azure Cosmos DB, Azure SQL Database, Azure SQL Managed Instance, Azure Database for MySQL, and Azure Database for PostgreSQL. In addition, you'll learn about several of the big data and analysis services in Azure.

Learning objectives

After completing this module, you'll be able to describe the benefits and usage of:

- Azure Cosmos DB
- Azure SQL Database
- Azure SQL Managed Instance

Start > ⊕ Save

Prerequisites

- You should be familiar with basic computing concepts and terminology.
- An understanding of cloud computing is helpful, but isn't necessary.

This module is part of these learning paths

Azure for Researchers part 1: Introduction to Cloud Computing

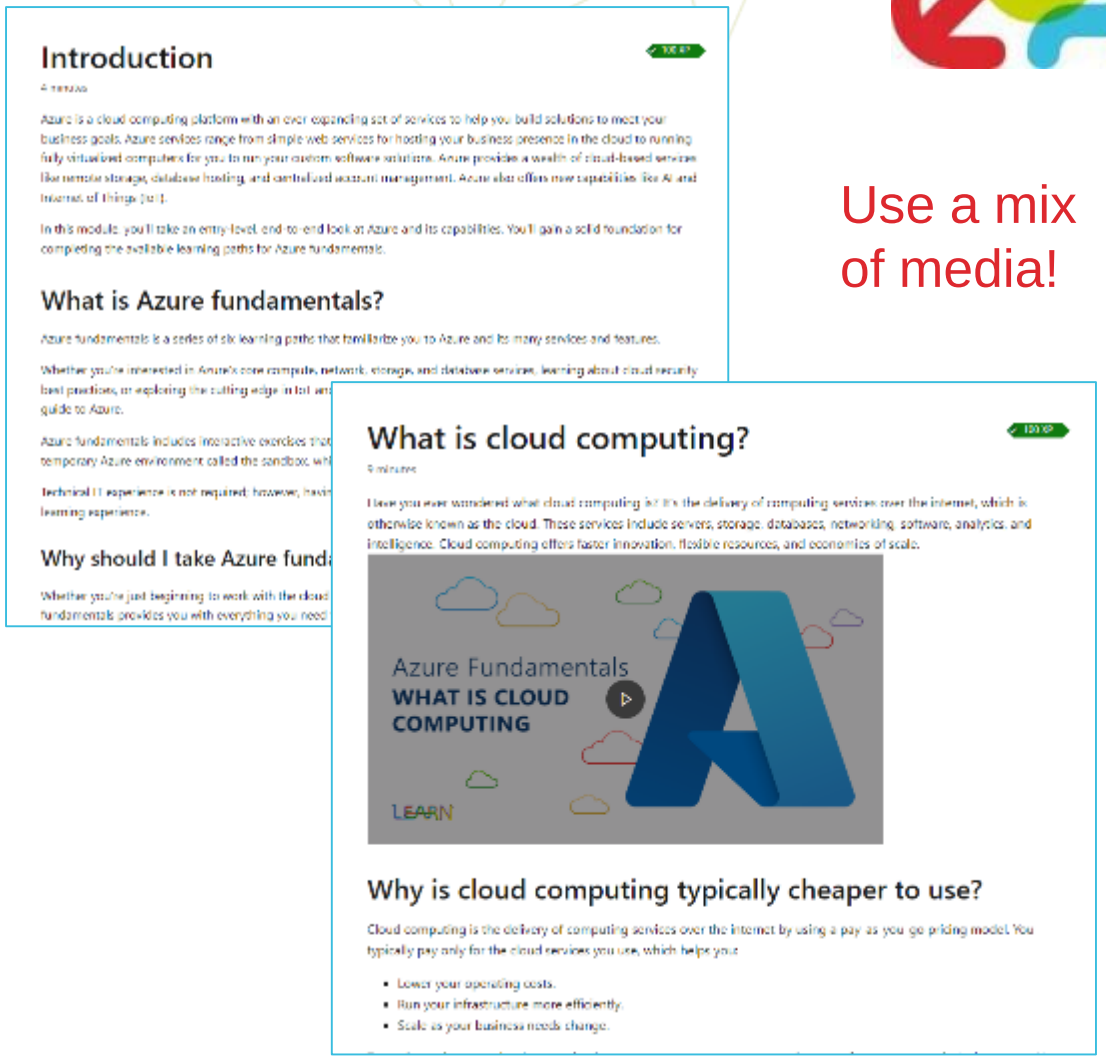
Microsoft Azure Fundamentals: Describe core Azure services

Architect a data platform in Azure

https://docs.microsoft.com/en-gb/learn/modules/azure-database-fundamentals/

Activity types

- Giving information
  - Benefits of service etc
  - Background knowledge
  - Describe / illustrate features
- Testing knowledge
  - Quizzes
  - Test memory
  - Test understanding
- Practical exercises



Use a mix of media!

https://docs.microsoft.com/en-us/learn/modules/intro-to-azure-fundamentals/

Elastic Cloud Computing Cluster: EC3

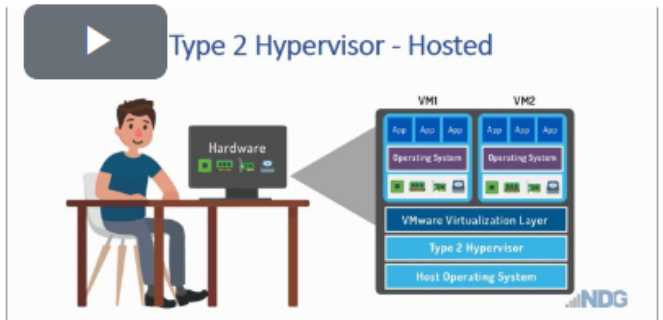
Introduction: key concepts

In this initial section of the course, we are going to briefly review the key concepts related with EC3. You can go directly to the section of your interest. Moreover, if you are familiar witl concepts, you can directly go to the next section in the course (Elastic Cloud Computing Cluster), and/or have fun with the little **questionnaire** prepared at the end of this section.

1.- Virtualization & Cloud computing

These two concepts are deeply related, and are the key computing paradigms behind EC3. **Virtualization** is defined by NIST (National Institute of Standards and Technology) as "the software and/or hardware upon which other software runs." And what are the benefits of such simulation instead of using directly the hardware resources? As NIST states, "the main virtualization is its ability to maximize the use of a system's resources. By loading the system with multiple operating systems and services, no processing or memory power goes to

There are several types of virtualization, from application virtualization, that provides the ability to run server applications on user's desktop; to full virtualization, that provides a comp of the underlying hardware. In the middle we can find also paravirtualization, that provides a partial simulation of the hardware of a physical server; or specific resource virtualizatio network virtualization. The key component in virtualization is the **hypervisor**. A hypervisor, also known as a virtual machine monitor or VMM, is the software that creates and runs **Virtu** (VMs). A hypervisor allows one host computer to support multiple guest VMs by virtually sharing its resources, such as memory and processing. To run a VM, the hypervisor uses the **Images** (VMI), that are files comprising the operative system to emulate. Let's watch a video that illustrates all these concepts:



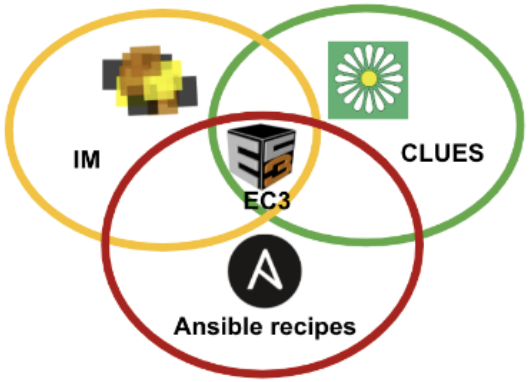
Elastic Cloud Computing Cluster

Elastic Cloud Computing Cluster (EC3) is a tool to create elastic virtual clusters on top of Infrastructure as a Service (IaaS) providers, either public (such as Amazon Web Services, Google Cloud or Microsoft Azure), on-premises (such as OpenNebula and OpenStack) or federated, such as EGI FedCloud or Fogbow. We offer recipes to deploy Kubernetes, TORQUE, SLURM, SGE, HTCondor, Mesos, and Nomad clusters that are self-managed by the service.

EC3 proposes the combination of Green computing, Cloud computing and HPC techniques to create a tool that deploys elastic virtual clusters on top of IaaS Clouds. EC3 creates elastic cluster-like infrastructures that automatically scale out to a larger number of nodes on demand up to a maximum size specified by the user. Whenever idle resources are detected, the cluster dynamically and automatically scales in, according to some predefined policies, in order to cut down the costs in the case of using a public Cloud provider. This creates the illusion of a real cluster without requiring an investment beyond the actual usage. Therefore, this approach aims at delivering cost-effective elastic Cluster as a Service on top of an IaaS Cloud.

As a summary, the main **objectives** of EC3 are:

- To facilitate the access to computing platforms for non-experienced users.
- To maintain the traditional work environment, with clusters configured with a well-known middleware.
- To offer the automatic management of elasticity, reducing costs (public cloud) and energy expenditure (priv
- To support the automatic configuration of the application execution environment.
- To be compatible with a wide range of cloud providers (public, federated and on-premises).
- To support hybrid clusters.



From NIST's perspective what are Cloud Computing's five essential attributes?

- [ ] a. Free to use
- [ ] b. Rapid Elasticity
- [ ] c. Measured service
- [ ] d. Broad network access
- [ ] e. Resource pooling
- [ ] f. On-demand self-service

A computing cluster is a set of computers that work together so that they can be viewed as a single system. All these computers are inter-connected to each other through fast local area networks allowing them to work together with the ability to perform computationally intensive tasks. All these computers need to have the same physical characteristics to be part of the cluster.

Select one:

- ○ True
- ○ False

The key component in virtualization is the [ ]. It is also known as a virtual machine monitor or VMM. This software that creates and runs [ ].

A hypervisor allows one host computer to support multiple guest VMs by virtually sharing its [ ], such as memory and processing.

resources
hypervisor
virtual machines

In this section of the course, we will use the EC3 CLI following a brief example that you can try by your own to test EC3. We finish the section with hints advices on how to develop your own recipes for EC3.

Let's try EC3 with a very simple example, launching a Kubernetes cluster on top of OpenStack.

1. Create the authentication file

First create a file `auth.dat` with a single line like this:

id = ost; type = OpenStack; host = https://host.domain:5000; username = `<<user>>`; password = `<<pass>>`; tenant = <tenant>

Replace `<<user>>` and `<<pass>>` with the corresponding values for the Openstack account where the cluster will be deployed. Also add the `<<tenant>>` corresponding value in your case.

This file is the authorization file and can have more than one set of credentials. In fact, we are going to add also a line for the Infrastructure Manager service. Add a line at the end of `auth.dat the` the file like this:

A story of integration: SAPS

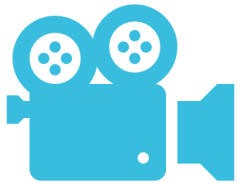
SAPS (SEB Automated Processing Service) is one of the ten Thematic Service of the EOSC Synergy project. SAPS is a service to estimate Evapotranspiration (ET) and other environmental data that can be applied, for example, on water management and the analysis of the evolution of forest masses and crops. SAPS allows the integration of Energy Balance algorithms (e.g. Surface Energy Balance Algorithm for Land (SEBAL) and Simplified Surface Energy Balance (SSEB)) to compute the estimations that are of special interest for researchers in Agriculture Engineering and Environment. These algorithms can be used to increase the knowledge on the impact of human and environmental actions on vegetation, leading to better forest management and analysis of risks.

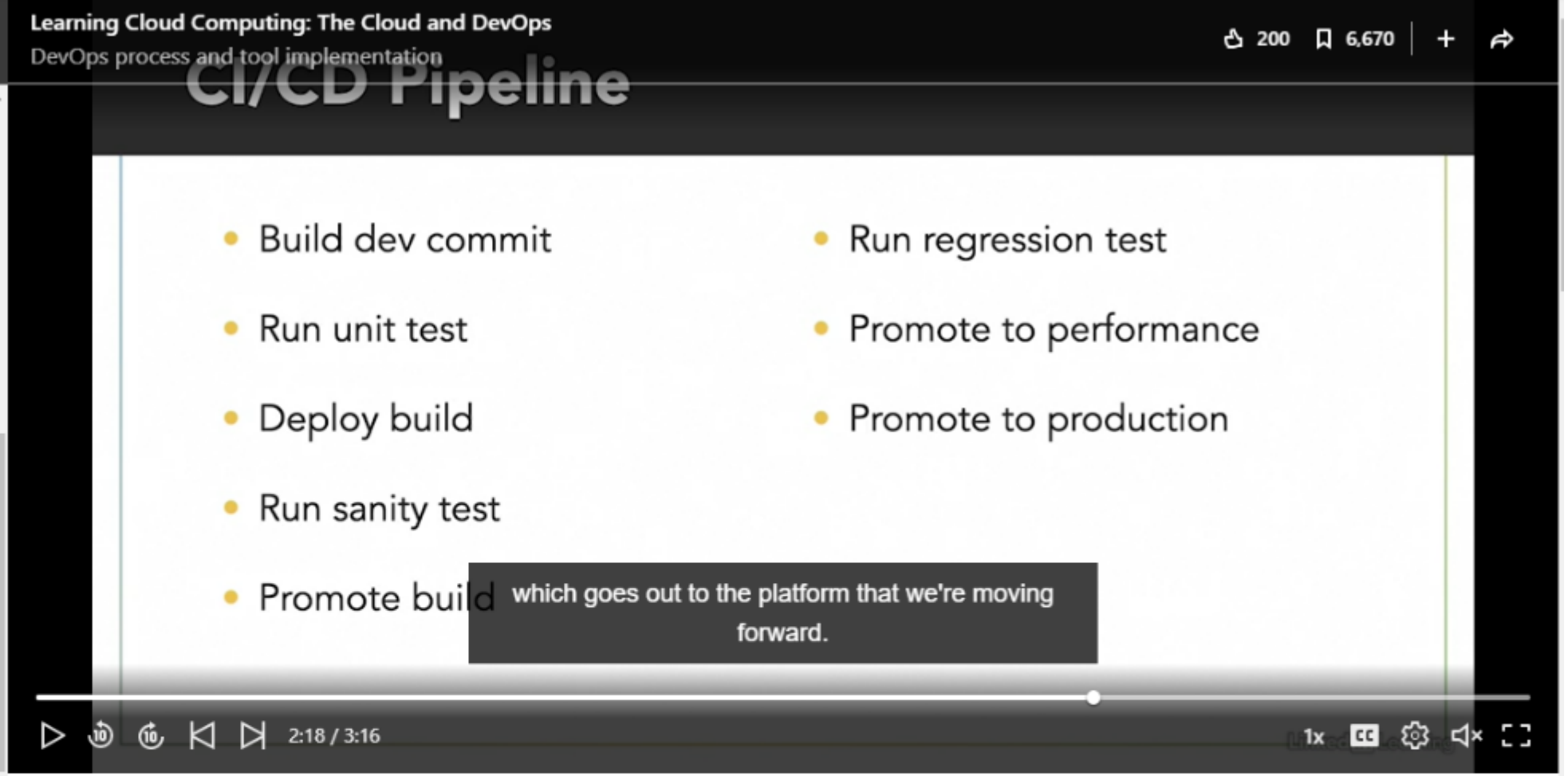
In this section of the course, we will go through the example of integration of the SAPS Thematic service with Kubernetes and EC3. The service is currently used by SAPS to deploy and configure a Kubernetes cluster automatically with SAPS running on it. Also, EC3 is used to manage the elasticity of the K8s cluster automatically. The tool facilitates the deployment and management of SAPS service.

Figure 1.- Logos of the three main technologies involved: EC3, Kubernetes and SAPS.

Examples – video tutorials

- Good for background information and feature overviews
- e.g. LinkedIn Learning
  - Short videos sequenced to run one after the other
  - Menu which can be used to select each video
  - Quizzes to test knowledge
- Methods to create videos include
  - Screen capture software
  - In-built PowerPoint recording
  - Recording Zoom calls





Overview Q&A Notebook Transcript

INSTRUCTOR

David Linthicum
Chief Cloud Strategy Officer at Deloitte Consulting
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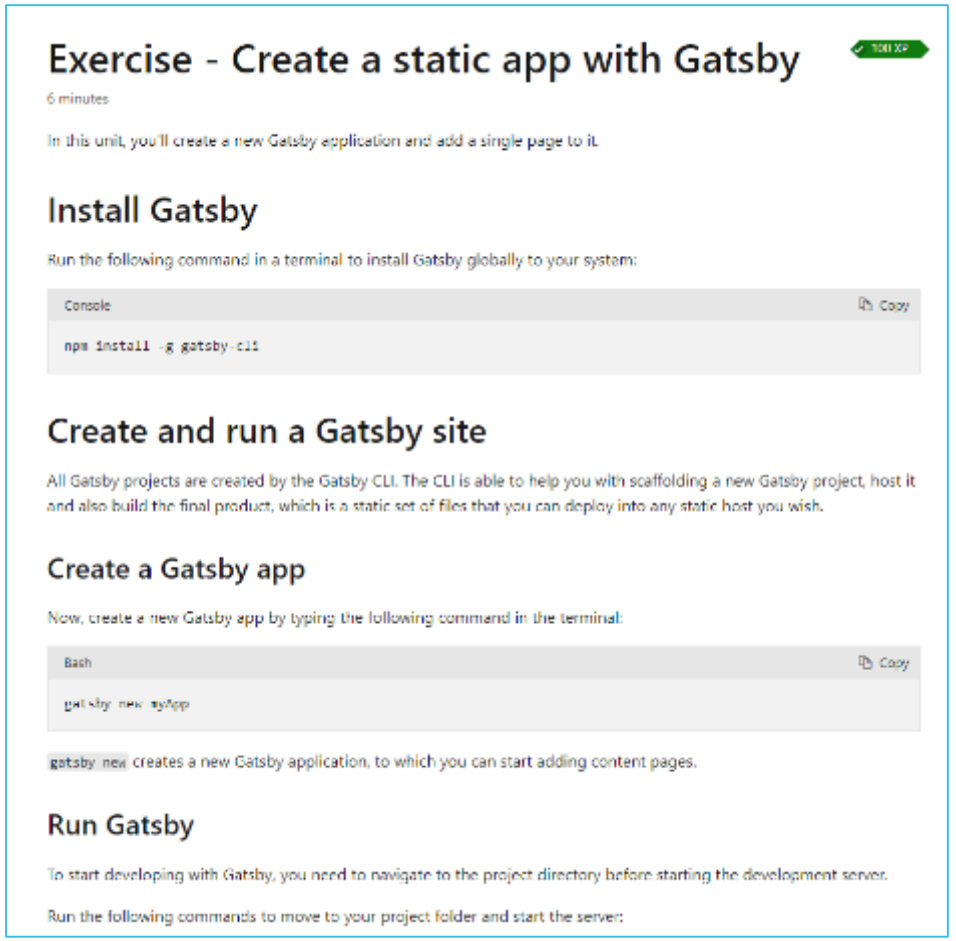
RELATED TO THIS COURSE

Certificates · Show all

Step-by-step tutorials

- Provide practical experience
- Mostly text-based to make it easy to use as a reference
- Can involve demo files



Exercise - Create a static app with Gatsby

100 XP

6 minutes

In this unit, you'll create a new Gatsby application and add a single page to it.

Install Gatsby

Run the following command in a terminal to install Gatsby globally to your system:

Console Copy

```
npm install -g gatsby-cli
```

Create and run a Gatsby site

All Gatsby projects are created by the Gatsby CLI. The CLI is able to help you with scaffolding a new Gatsby project, host it and also build the final product, which is a static set of files that you can deploy into any static host you wish.

Create a Gatsby app

Now, create a new Gatsby app by typing the following command in the terminal:

Bash Copy

```
gatsby new myApp
```

`gatsby new` creates a new Gatsby application, to which you can start adding content pages.

Run Gatsby

To start developing with Gatsby, you need to navigate to the project directory before starting the development server.

Run the following commands to move to your project folder and start the server:

https://docs.microsoft.com/en-gb/learn/modules/create-deploy-static-webapp-gatsby-app-service/

Get started with Docs

Edit and format a document

Next: Share and collaborate on files

Edit a document, change how it looks, and work in it much like you did in your old program. Google Docs automatically saves every change you make.

In this section, you learn how to:

- Add and edit text
- Customize your document
- Add pictures, links, tables, and more
- Create page columns

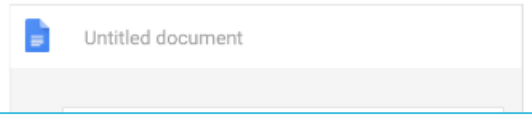
Add and edit text

Rename your document:

At the top of the page, click **Untitled document**, enter a new title, and click **OK**.

Add or edit text:

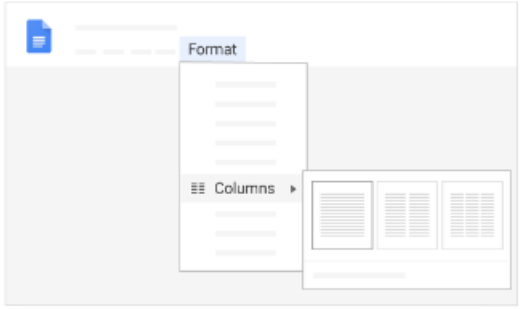
Just click in the page and start typing.



Create page columns

If you're working on an academic paper or another large document, you can organize your text in columns.

1. Click **Format** > **Columns**.
2. Select the number of columns you want.
3. (Optional) To adjust the spacing, or add lines between columns, click **Format** > **Columns** > **More options**.
4. Click **Apply**.



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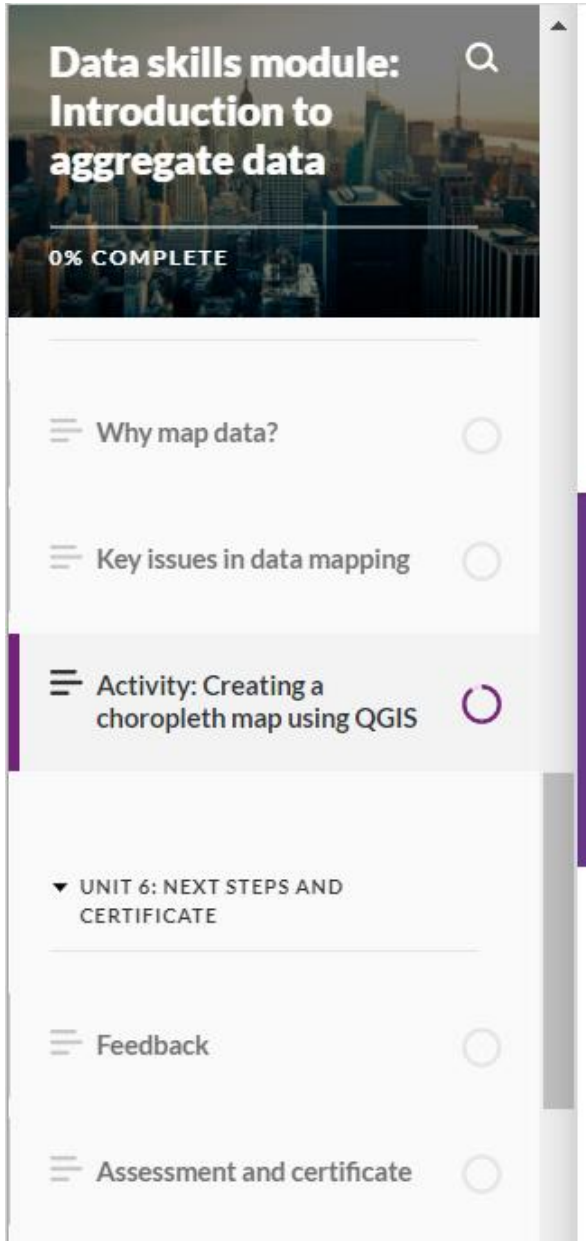
Google Docs training and help



Activity: Creating a choropleth map using QGIS

Introduction

In this task, you will watch a video illustrating how to map census data and follow along with the process.

We are using Local Authority level data about people with poor health conditions in the UK. We will download the data from the UK Data Service's census tool InFuse and we will be matching this data with a map of the Local Authority areas of the UK from the UK Data Service census boundary data.

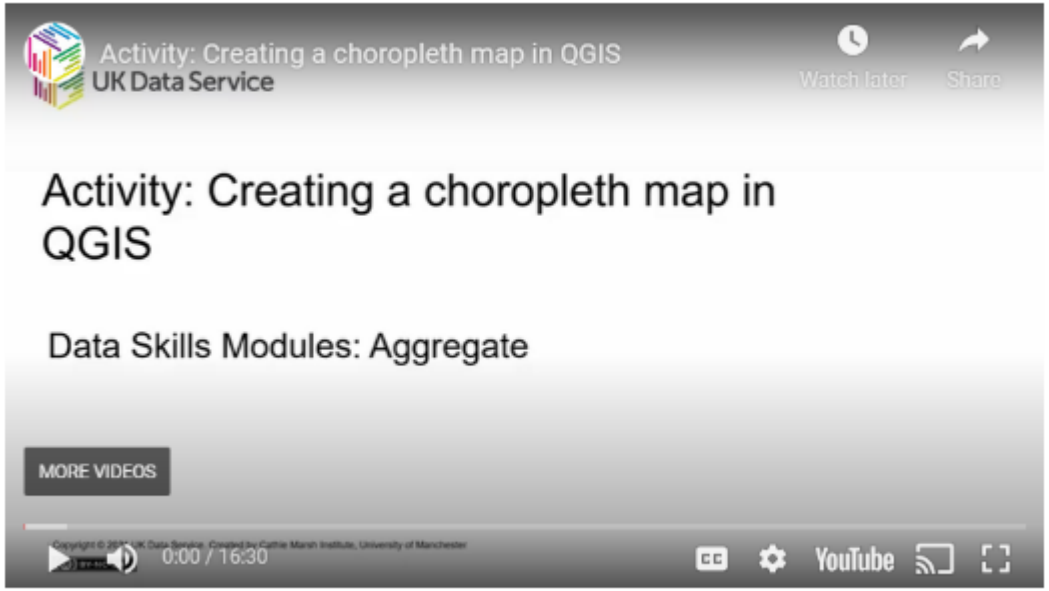
UK Data Service Data skills module: Introduction to aggregate data

What you'll need for this task

- Excel, or a Google account to access Google Sheets
- A tool for unzipping compressed files
- QGIS, a free and open source geographical information system

The video below shows how to create a choropleth map showing levels of health by local authority in the UK using the 2011 census. The steps in the video show how to:

1. obtain health data from the UK census 2011 using the UK Data Service online tool Infuse
2. alter the data in Excel so that QGIS can read the data
3. download census boundary data from the UK Data Service
4. match the data in QGIS 3.16
5. create a choropleth map showing levels of bad and very bad health by local authority, and
6. edit and export your map.

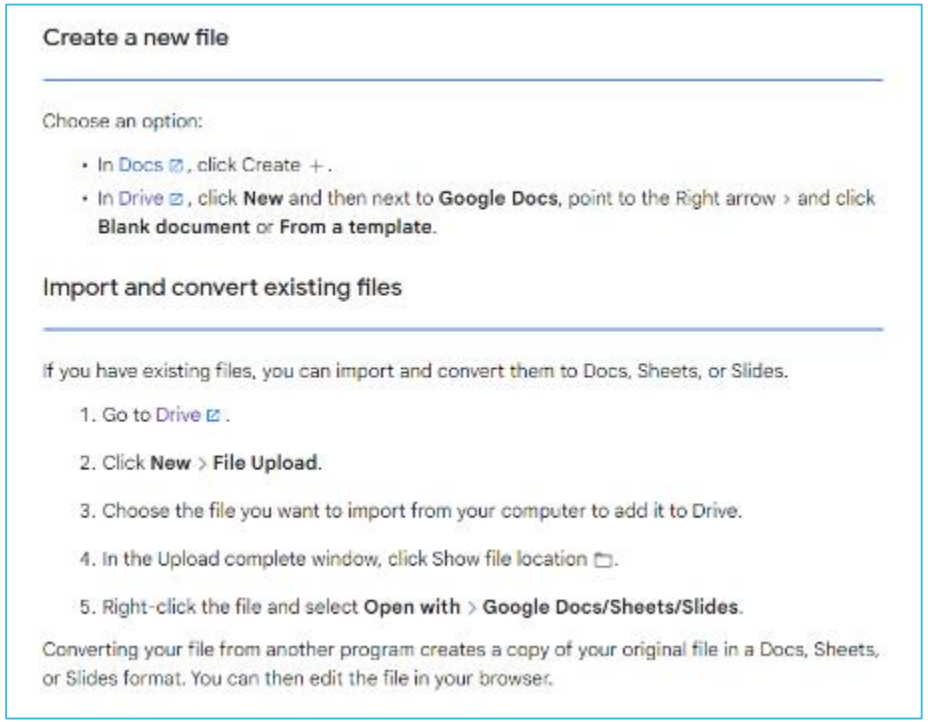


Either watch the video below or follow along with the video to create the choropleth map in QGIS yourself. Note that you can change the quality of the video by clicking on the cog icon at the bottom right of the video.

UK Data Service Data skills module: Introduction to aggregate data

Writing style for the web

- Use white space
- Use headings and bullets
- Use bold for emphasis
- Be concise
- Be consistent



Create a new file

Choose an option:

- In Docs, click Create +.
- In Drive, click **New** and then next to **Google Docs**, point to the Right arrow › and click **Blank document** or **From a template**.

Import and convert existing files

If you have existing files, you can import and convert them to Docs, Sheets, or Slides.

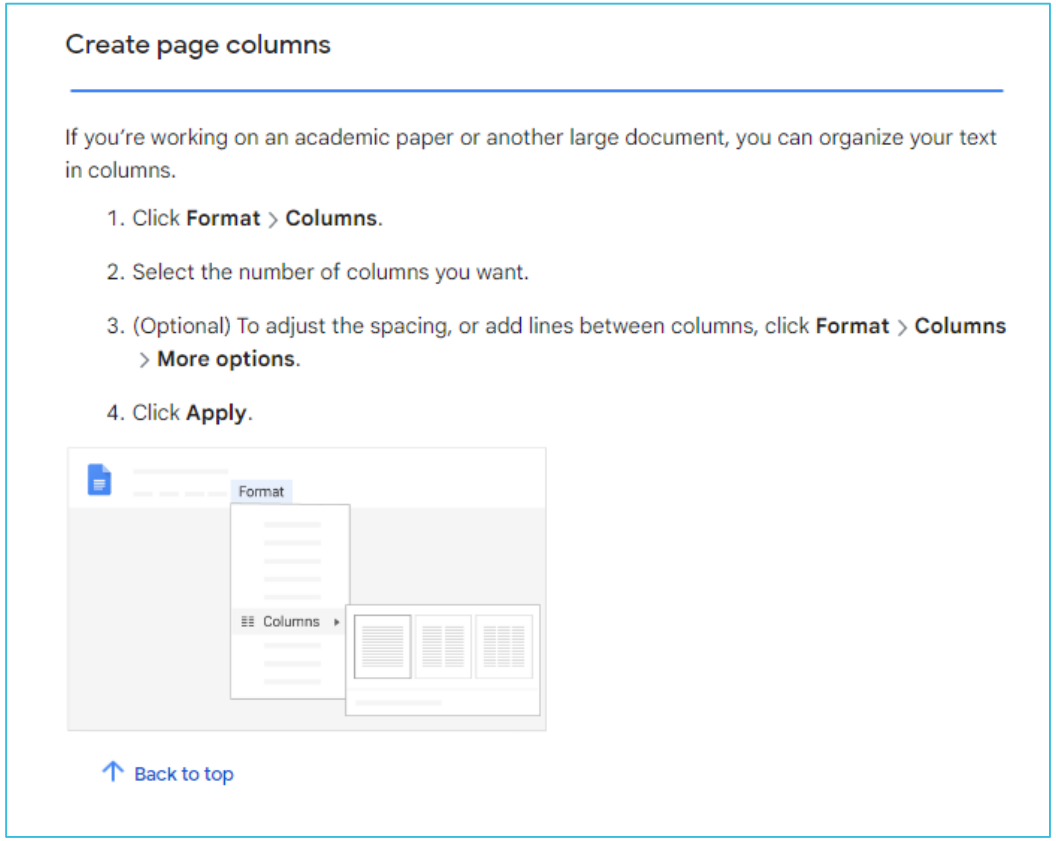
1. Go to Drive.
2. Click **New** > **File Upload**.
3. Choose the file you want to import from your computer to add it to Drive.
4. In the Upload complete window, click Show file location.
5. Right-click the file and select **Open with** > **Google Docs/Sheets/Slides**.

Converting your file from another program creates a copy of your original file in a Docs, Sheets, or Slides format. You can then edit the file in your browser.

https://support.google.com/a/users/answer/9300311?hl=en&ref_topic=9296546

Writing instructions

- Provide step-by-step instructions
- But… not too many steps
- Write instructions in logical order
- Long pages are ok
- Use illustrations
- Address the reader as ‘you’
- Active language



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4. Click **Apply**.

Back to top

https://support.google.com/a/users/answer/9305685?hl=en&ref_topic=9296546#

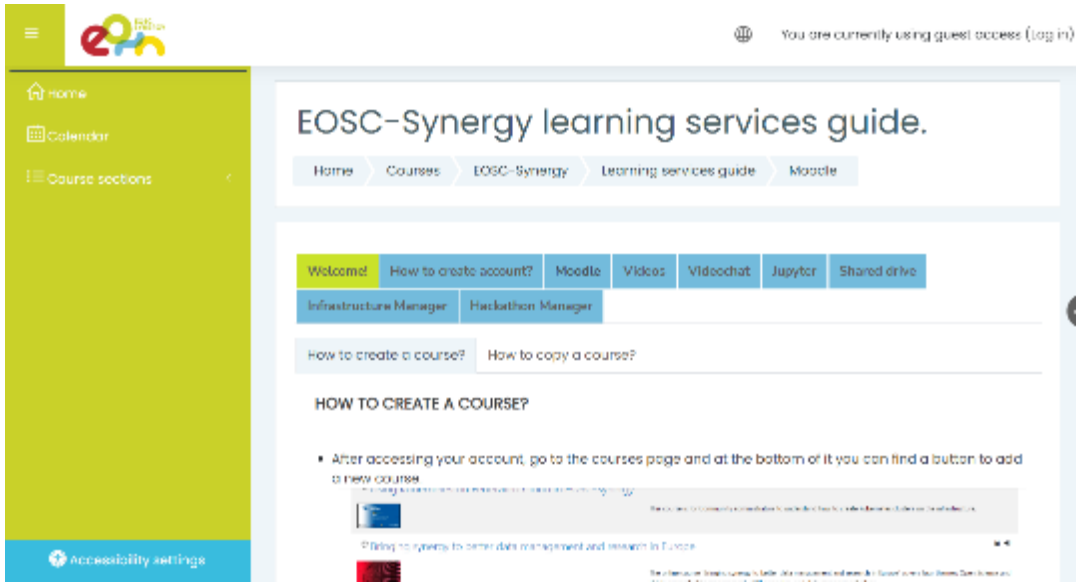
Tools for creating content

Many available!

- Learning management systems (LMS)
  - eg Moodle, Blackboard, Canvas, Open edX
- e-Learning authoring tools
  - Articulate, Adapt, Adobe Captivate
- Software you might already have
  - Word, PowerPoint, Text editor

Practical tips for content creation

- Create content outside of Moodle (or any LMS) before uploading
- Keep track of resources you use for citation purposes
- Get feedback from others regularly
- Make content accessible
- Allow enough time and resource



Maintenance

- Service tutorials will need updating
- Web pages make this easy
- Keep videos short or get good at editing
- Consider templates and guidelines for creating tutorials
  - Standard fonts, colours, image styles etc…
- Include date of update and version of software

References – examples

- EOSC Synergy courses [course list]
  - Elastic Cloud Computing Cluster: EC3
  - Using Kubernetes on Federated Cloud in EOSC Synergy
  - Using Openstack to manage cloud applications
- UK Data Service data skills modules
- Google Docs training and help
- Microsoft Learn

Further references - guidance

EOSC Synergy – Creating quality online training

Confluence ‘How to article checklist’ and template

Atlassian ‘Documentation standards to live by’

5 examples of excellent API documentation

Wordtune – to improve writing style

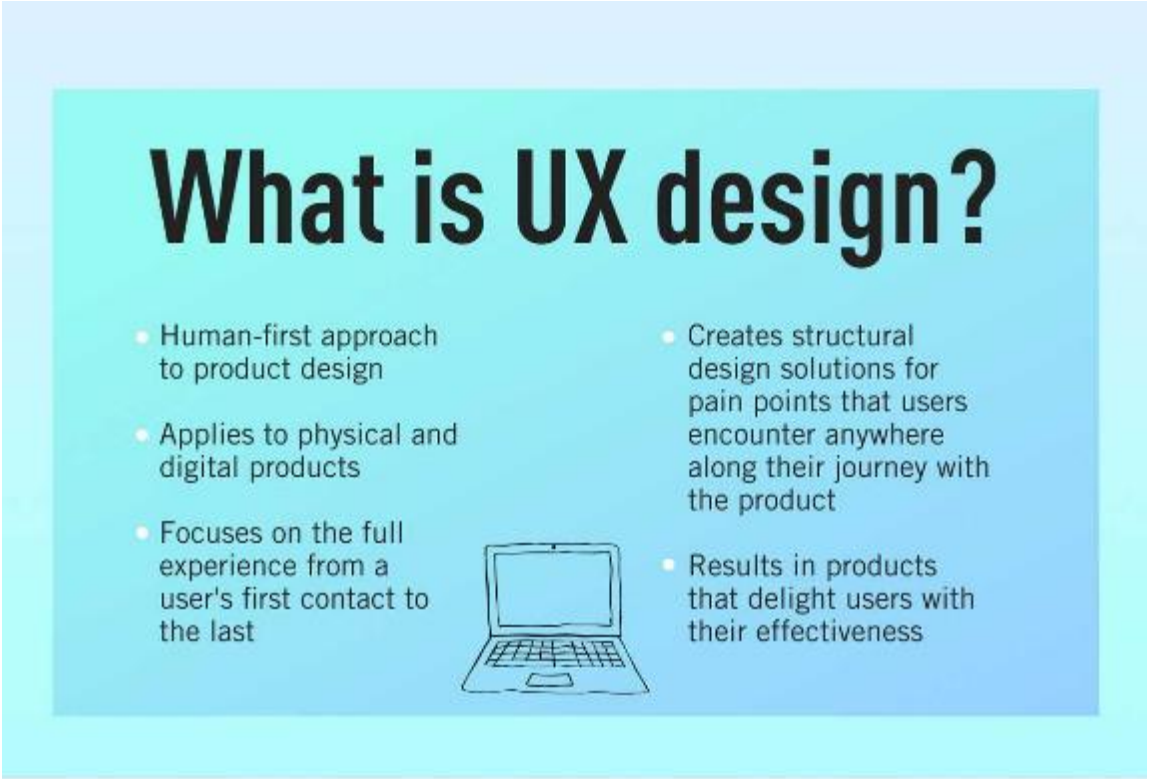
Purdue Online Writing Lab

- Active and Passive Voice
- Eliminating Words

Understanding Web Content Accessibility Guidelines (WCAG)

A final word about service design

- Good user experience design (UX) can reduce the need for training
- Can also design in support
  - Contextual help



https://careerfoundry.com/en/blog/ux-design/what-does-a-ux-designer-actually-do/

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