Welcome to this CoGrammar session:

Django I

The session will start shortly...

Questions? Drop them in the chat.
We'll have dedicated moderators
answering questions.

Software Engineering Session Housekeeping

- The use of disrespectful language is prohibited in the questions, this is a supportive, learning environment for all - please engage accordingly. **(Fundamental British Values: Mutual Respect and Tolerance)**
- No question is daft or silly - **ask them!**
- There are **Q&A sessions** throughout this session, should you wish to ask any follow-up questions.
- If you have any questions outside of this lecture, or that are not answered during this lecture, please do submit these for upcoming Academic Sessions. You can submit these questions here: Questions

Software Engineering Session Housekeeping cont.

- For all **non-academic questions**, please submit a query: www.hyperiondev.com/support
- Report a **safeguarding** incident: www.hyperiondev.com/safeguardreporting
- We would love your **feedback** on lectures: Feedback on Lectures

Enhancing Accessibility: Activate Browser Captions

Why Enable Browser Captions?

- Captions provide **real-time text for spoken content**, ensuring inclusivity.
- Ideal for individuals in noisy or quiet environments or for those with **hearing impairments**.

How to Activate Captions:

1. **YouTube or Video Players:**
   - Look for the CC (Closed Captions) icon and click to enable.
2. **Browser Settings:**
   - Google Chrome: Go to *Settings > Accessibility > Live Captions* and toggle ON.
   - Edge: Enable captions in *Settings > Accessibility*.

Safeguarding & Welfare

We are committed to all our students and staff feeling safe and happy; we want to make sure there is always someone you can turn to if you are worried about anything.

If you are feeling upset or unsafe, are worried about a friend, student or family member, or you feel like something isn't right, speak to our safeguarding team:

Ian Wyles
Designated Safeguarding Lead

Simone Botes

Nurhaan Snyman

Rafiq Manan

Ronald Munodawafa

Tevin Pitts

Scan to report a safeguarding concern

or email the Designated Safeguarding Lead:
Ian Wyles
safeguarding@hyperiondev.com

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Stay Safe Series:

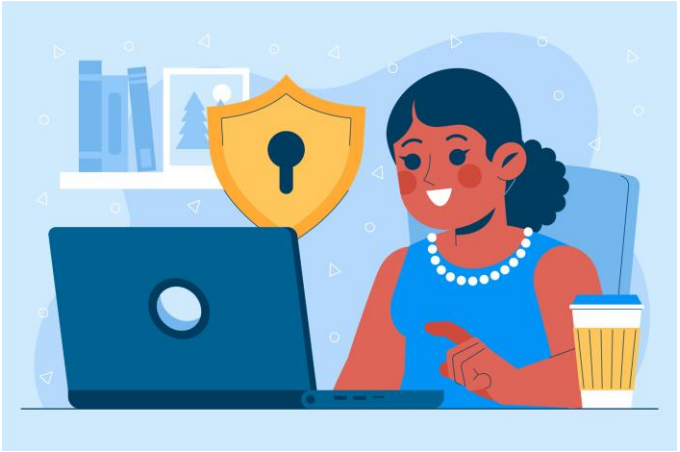
Mastering Online Safety One Week or Step at a Time

While the digital world can be a wonderful place to make education and learning accessible to all, it is unfortunately also a space where harmful threats like online radicalisation, extremist propaganda, phishing scams, online blackmail and hackers can flourish.

As a component of this BootCamp the *Stay Safe Series* is designed to guide you through essential measures in order to protect yourself & your community from online dangers, whether they target your privacy, personal information or even attempt to manipulate your beliefs.

Privacy Matters: Guarding Your Personal Info Online

- Use Strong, Unique Passwords for Each Account
- Be Cautious with Social Media Sharing
- Keep Software Updated
- Beware of Phishing Scams
- Monitor Your Accounts Regularly

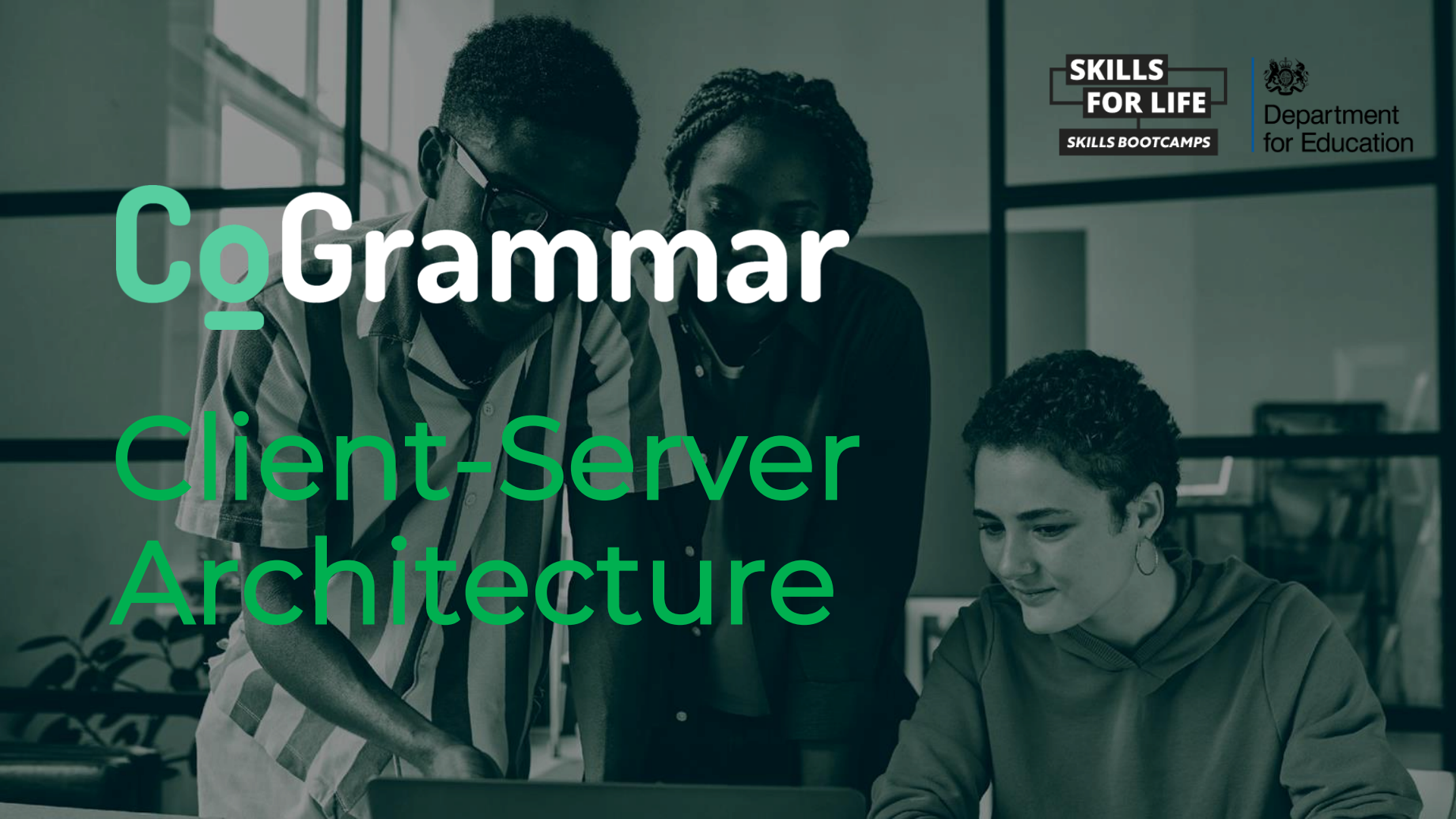


Learning Outcomes

- Define the client-server architecture
- Explain the request response cycle used in the client server architecture.
- Define HTTP
- Define what a web framework is.
- Describe Django
- Explain the benefits of Django
- Describe the MVT structure of Django

Learning Outcomes

- Explain what a template is in Django.
- Create templates for your Django projects.
- Explain what a view is in Django.
- Route views to specific urls.
- Create views that will render your templates to the user.
- Render templates with context data received from view.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Client-Server Architecture

Client-Server Architecture

- Network architecture that breaks down task and workloads between clients and server.
- Can reside on same system or linked by a computer network.
- Typically consists of multiple workstations, PCs or other devices belonging to users connected to a central server.
- Connect through internet connection or other network connection.

Client-Server Architecture

- Basic steps
  - Client sends request for data
  - Server accepts request
  - Server processes request
  - Send requested data back to user

Servers and Clients

- Servers
  - Not just a computer that clients make requests to.
  - Requires appropriate server software to run to be a server
    E.g. Apache, Tomcat, Nginx
- Client
  - Not just any device making requests
  - Requires correct software to make requests
  - Most common client - Web browser
  - Your social media application is also a client

HTTP

- Stands for HyperText Transfer Protocol
- Underlying protocol of WWW
- Defines how messages are formed and transmitted between clients and server.
- Defines actions clients and server must take in response to various commands.

HTTP

- Basic example of HTTP implementation
  - Urls gets entered in a browser
  - Browser send HTTP command to server
  - Command directs server to search for and transmit requested page.
  - Response can be providing an HTML page in this instance.

HTTP

- HTTP is a stateless protocol
- Each request is independent from the previous request

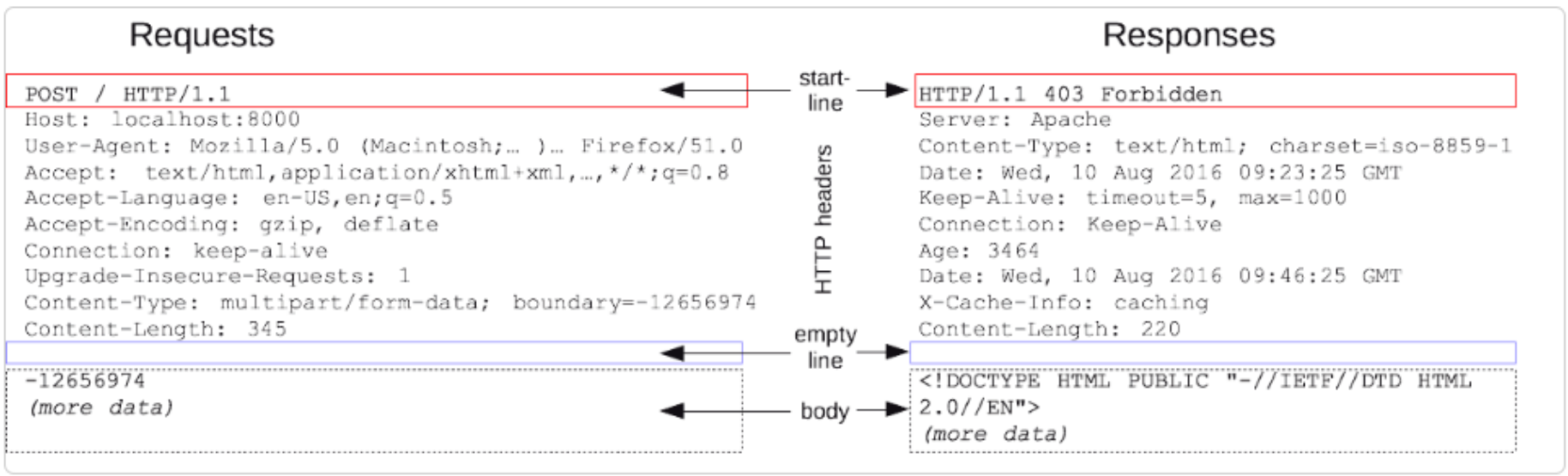
HTTP

- E.g. a request is made for the first ten records in a database and then another request is made for the next ten records
- Stateful protocol
  - Give me the first 10 records
  - Give me the next 10 records
- Stateless protocol
  - Give me records 1-10
  - Give me records 11-20

HTTP Messages

- Used for requests and responses
- Composed of textual information encoded in ASCII and spans multiple lines
- Consists of
  - Start line
  - Headers
    - General
    - Request
    - Representational
  - Body

HTTP Messages



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Status Codes

- Short notes tacked onto a webpage
- Not part of the site’s content but messages telling us how things went
- Returned every time your browser interacts with a server
- Helps diagnose and fix website configuration

Status Codes

5 Classes of status codes

- 100s
  - Informational code
  - Indicates request initiated in continuing
- 200s
  - Success code
  - Indicates request was received, understood and processed

Status Codes

- 300s
  - Redirection codes
  - When a new resource in substituted for the requested resource
- 400s
  - Client Error
  - Problem with request
- 500s
  - Server error
  - Request was accepted but a server error has occurred


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Django

What is a Web Framework?

- Software framework designed to assist in the development of web applications.
- Provides libraries for database access, templating frameworks, and session management.
- Promotes code reuse.

What is Django?

- Open-source web framework
- Used for developing secure and scalable websites and web applications
- Platforms using Django: Instagram, Spotify, Youtube and many more

Why Django?

- Has a large list of libraries and tools
- Allows for the creation of robust data driven applications.
- Code is fast to implement and is very clean and pragmatic

Model-View-Template (MVT) Architecture

- Variation of Model-View-controller architecture in Python
- Three main components
  - **Model**: Represents the business logic and data structure of the application.
  - **View**: Handles the interaction between the user and the application, managing the presentation logic.
  - **Template**: Deals with the presentation layer, defining the structure and appearance of the HTML content.

Views

- Views are Python functions we create in the views.py file.
- Views define the behaviour of our URL patterns.
- Views handle user requests and define the logic for processing them.

Templates

- Templates define the structure of the HTML pages.
- They incorporate dynamic data using template tags.
- They receive data from views through context dictionaries.

Django Template Language

- We build our templates using the Django Template Language.
- It allows us to create base templates and extend them.
- We can use variables inside our templates.
- It also contains ‘tags’ we can use to create loop structures and boolean checks.

Let’s take a short break

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Let’s get coding!

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Final Assessment

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Poll

1. What is the correct command below to create a new Django Project?

   A. django startproject
   B. django createproject
   C. django newproject
   D. django-admin startproject

Poll

2. What is the correct command below to run a Django Server?

   A. python manage.py runserver
   B. django-admin runserver
   C. python runserver
   D. python django-admin runserver

Lesson Conclusion

- Client-Server Architecture
- HTTP
- Web Framework
- Django
- Templates
- Views

Follow-up Activities

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Follow-up Activities

Try to create a web app that can take a user's information and display it to them on a new page with some nice style added to it.

Thank you for attending

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