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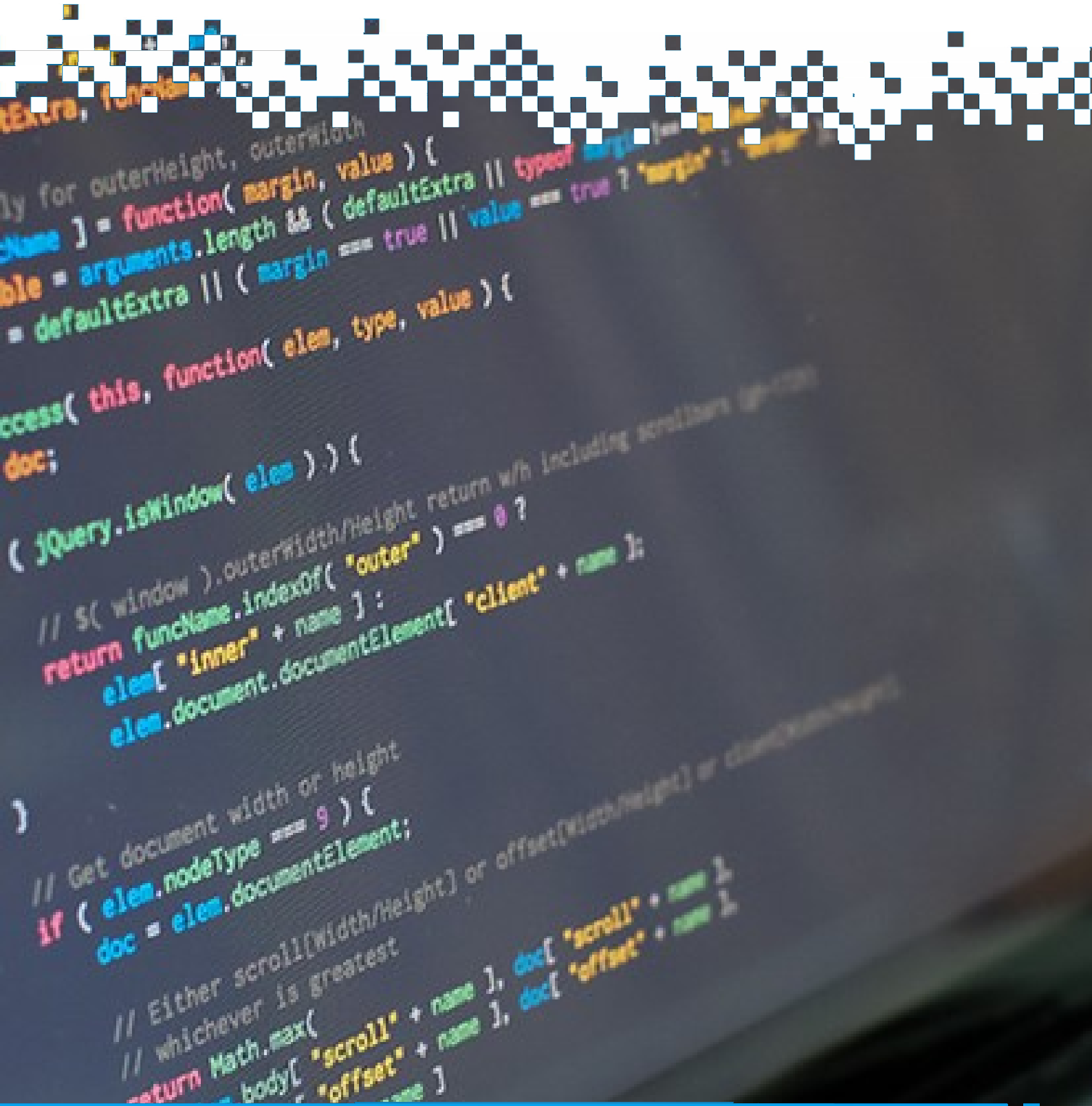

Session 1: OOP (Object Oriented Programming) and Object Type

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Object

- Objects contain data or attributes and methods or functions, which act on the data or attributes
- Object data can be stored inside an object package
- Objects are also commonly used as data stores that can be easily sent across the network

Object-Oriented Programming

- Object-Oriented Programming or OOP refers to language that uses objects in programming
- The main aim of OOP is to bind together the data and the functions that operate on them so that no other part of the code can access this data except that function
- OOP breaks down a problem into several entities called objects and builds data and functions around these objects

Fundamental concepts of object-oriented programming

There are four fundamental concepts of object-oriented programming. They are:

- Classes
- Encapsulation
- Objects
- Inheritance

Concepts of Object-Oriented Programming – Objects

- Objects are the basic run-time variables in an object-oriented framework
- They may represent a place, a person, an account, a table of data, or anything that the program needs to handle

Concepts of Object-Oriented Programming – Classes

- A class is a collection of objects of similar types
- Classes help to combine the objects and function together in a user-defined data type
- Each object is associated with the data of type class

- Any number of objects can be created in a class

Concepts of Object-Oriented Programming – Encapsulation

- Encapsulation is the wrapping up or binding of data and function into a single unit called class
- Data encapsulation is the most prominent feature of a class wherein the data is not accessible to the outside world, and only those functions wrapped inside the class can access it
- These functions serve as the interface between the object's data and the program

Concepts of Object-Oriented Programming – Inheritance

- The phenomenon where objects of one class acquire the properties of objects of another class is called Inheritance
- For example, the object "car" inherits the properties of the class "Vehicles" and class "Light Weight Vehicles"
- In OOP, the concept of inheritance ensures reusability. This means that the child class inherits all the existing features of the parent class. Additional features can be added to it
- To create a class inheritance, use the keyword 'extends'

Recap:

- Objects can contain related data and code, which represent information
- Object-oriented Programming (OOP) treats data as a crucial element in program development
- There are four fundamental concepts of Object-oriented programming. They are Objects, Classes, Encapsulation, and Inheritance
- A class is a collection of Objects of similar types
- Encapsulation is the wrapping up/binding of data and function into a single unit called Class
- The phenomenon where objects of one class acquire the properties of objects of another class is called Inheritance