



What is Object-oriented Programming?

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Last Lecture

- Short Presentations
- Review the last lecture
- Do you remember...
- Talking about exceptions and errors from Dr. Nowzari's slide...
- **Application of Programming in the Digital Age!**



Today

- Short Presentations
- Review the last lecture
- Review in OOP examples
- How to implement in Python?
- **Application of Programming in the Digital Age!**
- About final exam!



Together

Send your feedback about the
class whenever you want!



Contact me

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Short Presentations

Review the Last Lecture



Example

```
import sys
while True:
    try:
        A = int(input("Enter first number: "))
        B = int(input("Enter second number: "))
        C=A/B
    except ValueError:
        print("Oops!",sys.exc_info()[0],"occured.")
        print("Please try again, and enter an integer.")
    except (TypeError, ZeroDivisionError):
        print("Oops!",sys.exc_info()[0],"occured.")
        print("Please try again, and do not enter zero.")
    except:
        print("Oops!",sys.exc_info()[0],"occured.")
        print("Please try again.")
    else:
        print("The result is: ", C)
        break
    finally:
        print("If you got the result, it's ok,")
        print("otherwise please be careful!")
```

#Output

```
Enter first number: 10
Enter second number: 0
Oops! <class 'ZeroDivisionError'> occured.
Please try again, and do not enter zero.
If you got the result, it's ok,
otherwise please be careful!
Enter first number: 10
Enter second number: 2
The result is: 5.0
If you got the result, it's ok,
otherwise please be careful!
```




Nested objects!

Nested try

- Some `try` and `except` can be used nested

```
try:
    foo()
except FooError:
    handle_foo()
else:
    try:
        bar()
    except BarError:
        handle_bar()
    else:
        try:
            baz()
        except BazError:
            handle_baz()
        else:
            qux()
finally:
    cleanup()
```

Review in OOP examples



Check it!

GitHub interface showing the repository **SharifPythonSpace / Course1401** (Public). The repository has 0 Watchers, 3 Forks, and 5 Stars.

The navigation bar includes: Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. A red arrow points to the **Actions** tab.

The file browser shows the path: **main** / **Course1401** / **Resources** / **Others** / . Buttons for **Go to file**, **Add file**, and a menu are visible.

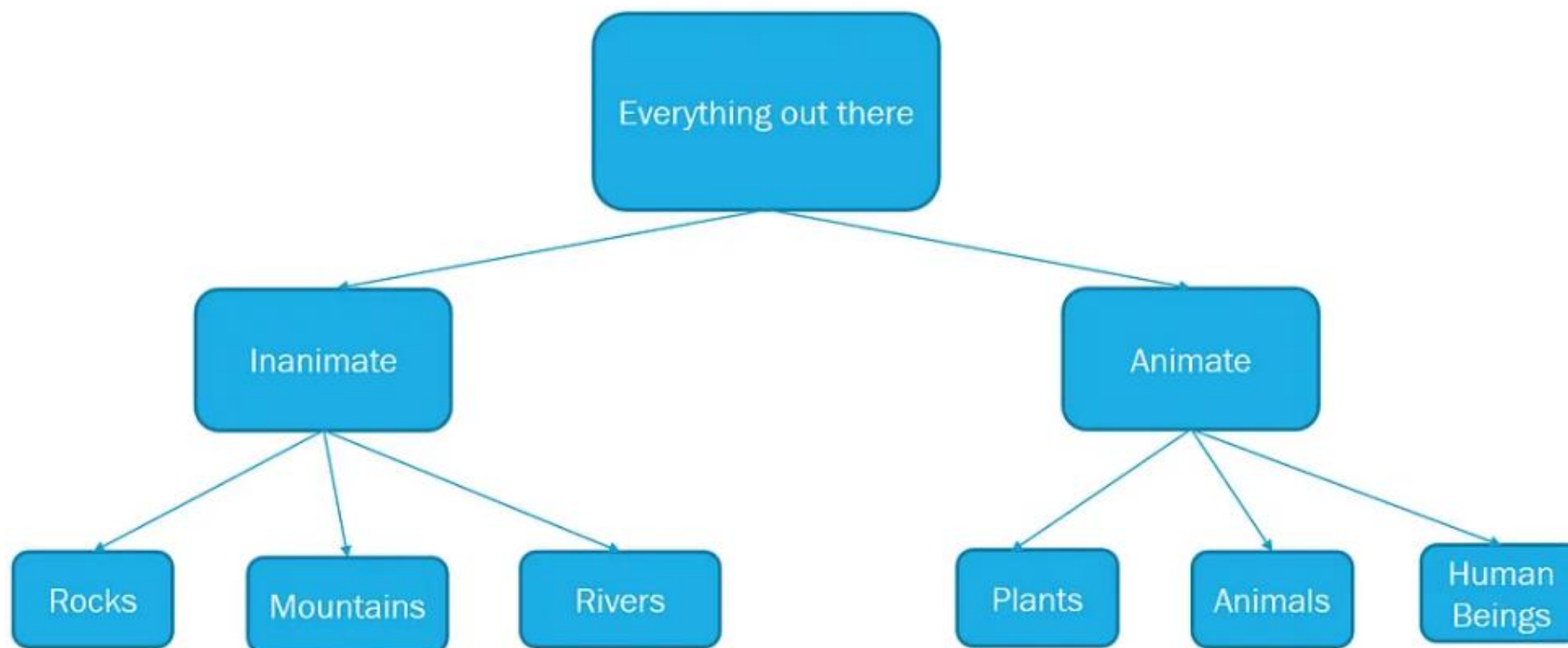
Recent commits:

- IKJ1992 added new extra slide (b180fef, 1 minute ago) [History](#)
- ..
- Fast Python Learning.pdf (added new slide, useful for fast review, 4 days ago)
- Programming Challenges The Programming Contest Tra... (added book resource about challenges, 2 months ago)
- SearchingSortingStonyUni.pdf (added new extra slide, 1 minute ago)

[Give feedback](#)



Every things are objects??





What is object?

The object is an entity that has a state and behavior associated with it. It may be any real-world object like a mouse, keyboard, chair, table, pen, etc. Integers, strings, floating-point numbers, even arrays, and dictionaries, are all objects.

An object consists of :

- **State:** It is represented by the attributes of an object. It also reflects the properties of an object.
- **Behavior:** It is represented by the methods of an object. It also reflects the response of an object to other objects.
- **Identity:** It gives a unique name to an object and enables one object to interact with other objects.

**Explain an object with
the 3 concepts! 🤖 🦾**



If a human were your computer...

Abstraction



Encapsulation

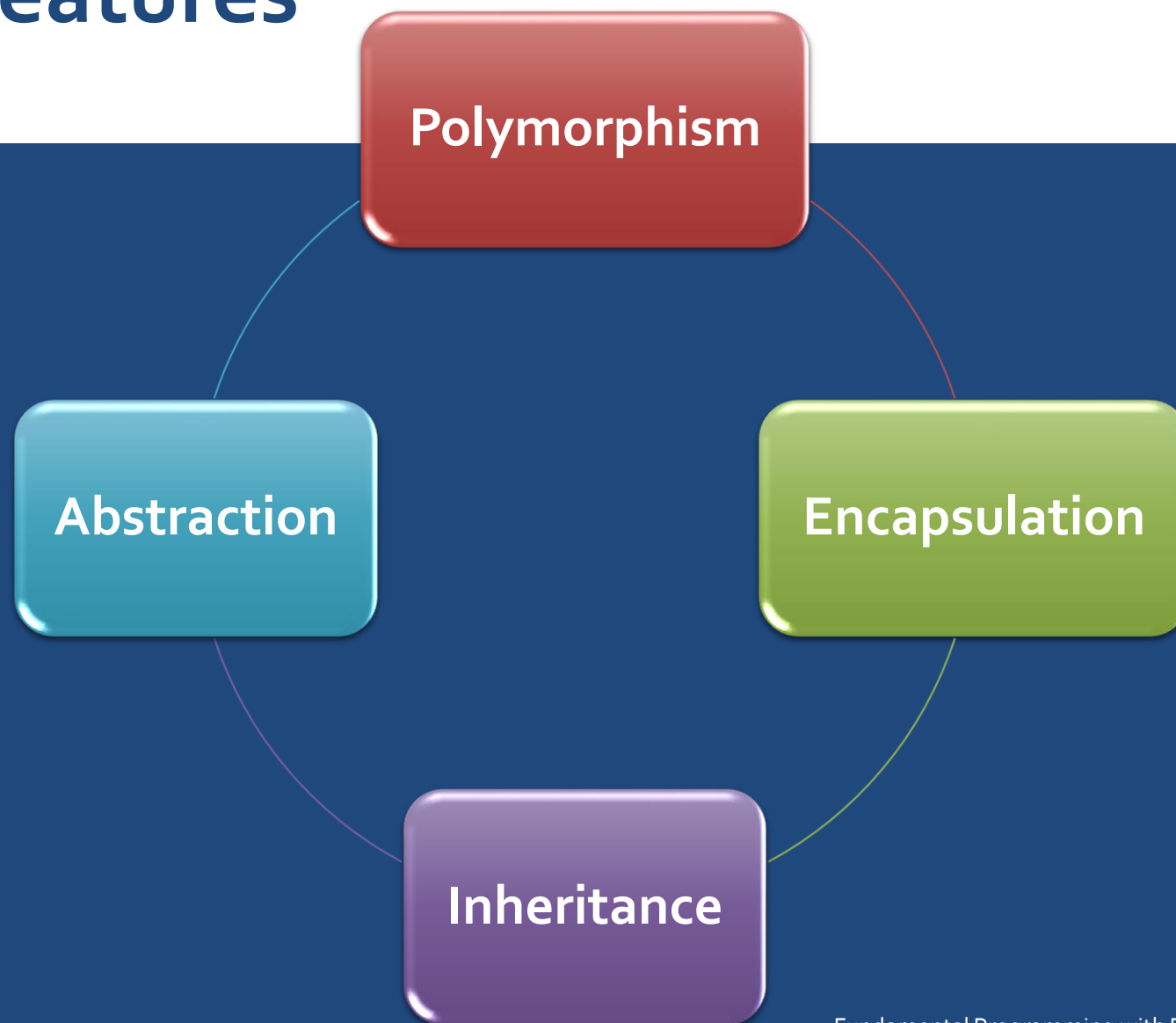


What is OOP?

- In Python, object-oriented Programming (OOPs) is a programming paradigm that uses objects and classes in programming.
- It aims to implement real-world entities like inheritance, polymorphisms, encapsulation, etc. in the programming.
- The main concept of OOPs is to bind the data and the functions that work on that together as a single unit so that no other part of the code can access this data.



Main OOP features



How to implement in Python?



Read and implement!



Visual Studio Code

The screenshot shows the GeeksforGeeks website interface. At the top, there's a navigation bar with links for Courses, Tutorials, Jobs, Practice, and Contests. Below this is a secondary navigation bar with various topics like Trending Now, DSA, Data Structures, Algorithms, Interview Preparation, Data Science, Topic-wise Practice, C, C++, Java, JavaScript, Python, Competitive Programming, Machine Learning, Aptitude, Write & Earn, and Web Dev. The main content area is titled 'Python OOPs Concepts' and includes a 'Read' button, a discussion section, and a list of main concepts of Object-Oriented Programming (OOPs). On the right side, there's a 'Courses' section featuring a course titled 'Data Structures & Algorithms in Python - Self Paced'.

Python OOPs Concepts

[Read](#) [Discuss](#) [Courses](#) [Practice](#) [Video](#)

In Python, object-oriented Programming (OOPs) is a programming paradigm that uses objects and classes in programming. It aims to implement real-world entities like inheritance, polymorphisms, encapsulation, etc. in the programming. The main concept of OOPs is to bind the data and the functions that work on that together as a single unit so that no other part of the code can access this data.

Main Concepts of Object-Oriented Programming (OOPs)

- Class
- Objects
- Polymorphism
- Encapsulation
- Inheritance
- Data Abstraction

Courses

DSA PYTHON

124k+ interested Geeks

Data Structures & Algorithms in Python - Self Paced

Beginner to Advance

Python E with Dja

5k+ in

Beginn

Application of Programming in the Digital Age!



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دیوار، پایگاه خرید و فروش بی‌واسطه!

اگه دنبال چیزی هستی، شهرت رو انتخاب کن و تو دسته‌بندی‌ها به دنبالش بگرد. اگر هم می‌خواهی چیزی بفروشی، چند تا عکس خوب ازش بگیر و آگهی رو بچسبون به دیوار.

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About Final Exam!



Lecture Resources

- <https://realpython.com/python3-object-oriented-programming/>
- <https://www.freecodecamp.org/news/object-oriented-programming-in-python/#:~:text=All%20four%20core%20aspects%20of,get%20some%20practice%20with%20them.>
- <https://www.geeksforgeeks.org/python-oops-concepts/>
- <https://www.programiz.com/python-programming/object-oriented-programming>