Python – Standard Libraries

Learn to Code with Python

Libraries: DateTime: The Date Object

- Example
  - import datetime // Need to use datetime.date
- Example import specific class
  - from datetime import date // Need to define date
  - birthday = date(1991,4,12)
  - print birthday // 1991-04-12
  - print(type(type(birthday)) // <class ‘datetime.date’>
  - date(2025, 15, 10) // ValueError
  - print (birthday.year) // The year,month,day are immutable
  - print (birthday.month)
  - print (birthday.day)
  - birthday.year = 2000 // AttributeError
  - today = date.today() // Returns a date object with the current date

Libraries: DateTime: The Time Object

- Example
  - from datetime import time
  - start = time()
  - print start() // prints 00:00:00
  - pirnt(type(start)) // <class ‘datetime.time’>>
  - print(start.hour) // hour , minute, second are available and immutable
  - print(time(6)) // prints 06:00:00 6:00 AM
  - print(time(hour = 18, minute = 20)) // prints 06:20:00 6:20 PM
  -

Libraries: DateTime: The DateTime Object 1

- from datetime import datetime
- The datetime has 6 parameters Year, Month, Day, Hour, Minute, Second.
  - Only Year, Month, Day needs to passed in
  - The rest default to 0
- The Year, Month, Day, Hour, Minute, Second are immutable
- Example
  - from datetime import datetime
  - print(datetime(1999, 7, 24))) // 1999-07-24 00:00:00
  - print(datetime(1999, 7, 24, 13, 10)) // 1999-07-24 01:10:00
  - print(datetime(year=1999,month=7,day=24, hour=14, minute=10)) // 1999-07-24 01:10
  - print(datetime.today()) // Returns today's date/time, but not the time (Class Method)
  - print(datetime.now()) // Returns the date/time (Class Method)
  - print(datetime.now()) // print 2019-12-07 15:45:24.289755 (The 289755 is milloseconds)
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Libraries: DateTime: The DateTime Object 1

- weekday – returns an integer for the day of the week
  - starts with Monday = 0, Sunday = 6
- Example
  - print (datetime.today().weekday()) // For Saturday it would print 5
  - same_time_twenty_years_ago = today.replace(year = 2000) // Changes the year to 2000 and returns a new datetime project

Libraries DateTime: The DateTime Object II : The strftime method

- Format a date object
- Example
  - from datetime import datetime
    - print(today.strftime(“%m/%d /%Y”)) // For todays date would produce 03/07/2019
    - print(today.strftime(%y-%m%d”)) // For todays date would produce 2019-03-07
    - print(today.strftime(“%A %M”)) // Would print Saturday March
  -

Libraries: DateTime : The TimeDelta Object

- A duration not a specific date
  - measurement of the passage of time
- Example
  - from datetime import datetime, timedelta
  - birthday = datetime(1991, 4, 12)
  - today = datetime.now()
  - my_life_space = today - birthday
  - print(my_life_span) // prints 10368 days, 11:49:38.068694
  - print(type(my_life_span)) // <class ‘datetime.timedelta’>
  - print(my_life_span.total_seconds()) // prints 8957837858.217547 which is the total second of my_line_span()
  - five_hundred_days = timedelta(days = 500, hours = 12) // Does not accept month or years as parameters
  - print(five_hundred_days) // prints 500 days, 12:00:00
  - print(five_hundred_days + five_hundred + days) // print 500 1001 days, 0:00:00
  - print(datetime.now() + five_hundred_days) // print the date that is 500 days into the future
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Libraries: Random Module: The Random, randint and randrange Functions
The Choice and Sample Functions

- Example
  - import random
  - print(random.random()) // prints a floating point number between 0 and 1.0
  - print(random.random() * 100) // Get a larger random number multiply it by a value
  - print(random.randint(1, 5)) // prints a random integer between the two parameters are inclusive. The results are 1,2,3,4,5
  - print(random.randrange(0,50,10) // prints a random integer. The results are 0, 10, 20, 30, 40. The upper bound is exclusive
- The choice and Sample Functions
  - choice → The choice function returns a random element from an iterable sequence. Set and Dictionary are not supported
    - throw an IndeError if an empty list is passed to the choice funcition
  - sample → provide a list and the number that you want to pull out and it will return a list of those items
  - Example
    - import random
    - print(random.choice([“Bob”, “Moe, “Curly”])) // prints one of the three
    - print(random.choice(“elephant”) // prints e, l, p, h, a, n, t randomly
    - print(random.sample([random.randint(1,50) for value in range(50)], 3) // result a list [20, 2, 45]

Libraries: Random Module:

- Shuffle → randomizes a list. Returns none, but the list is changed.
- Example
  - import random
  - characters = [“warrior”, “hunter”, “rogue”, “mage”]
  - print(random.shuffle(characters)) // The character list is different [“warrior”, “rogue”, “hunter”, “mage”]
- Example
  - import random
  - roles = [“DPS”, “Tank”, “Healer”]
  - random.shuffle(sorted(roles)) // Creates a copy of the roles, the shuffle will shuffle the copy the roles
  - print(role) // prints [“DPS”, “Tank”, “Healer”] since the shuffle command had a copy passed in.