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**Session 3**

**1/9/2022**

**Task 1:**

* **What is miniconda & what is the difference between it an anaconda ?[[1]](#r1)**

Miniconda is a free minimal installer for conda. It is a small, bootstrap version of Anaconda that includes only conda, Python, the packages they depend on, and a small number of other useful packages, including pip, zlib and a few others.

There are essentially two main differences:

1. **Number of packages:** Anaconda comes with over 150 data science packages, whereas miniconda comes with only a handful.
2. **Interface:** Anaconda has a graphical user interface (GUI) called the Navigator, while miniconda has a command-line interface.



**Task 2:**

* **Not clean code and someone who optimized it into a clean code**
  1. **Meaningful names**

Bad: var d; // elapsed time in days

Good: var elapsedTimeInDays;

var daysSinceCreation;

var daysSinceModification;

* 1. **Avoid Disinformation**

Bad: var accountList = [];

Good: var accounts = []

* 1. **Use Searchable Names**

Bad: if (student.classes.length < 7) {

// Do something}

Good**:** if (student.classes.length < MAX\_CLASSES\_PER\_STUDENT) {

// Do something}

**Task 3:**

* What is the framework and its benefits ?[[2]](#r2)

A framework is a structure that you can build software on. It serves as a foundation, so you're not starting entirely from scratch. Frameworks are typically associated with a specific programming language and are suited to different types of tasks.

Let's say you're building a house. You could pour the foundation and frame the house yourself. It would take a lot of time, but you could do it. If all of that were already done for you, though, it would save you quite a bit of effort — especially if it was done by expert home builders.

In software development, a framework serves a similar purpose. It's designed and tested by other Software Developers and Engineers, so you know it's a solid foundation.

A house isn't complete with just the framework, though. Similarly, a framework in software development is a starting point, but you add higher-level functionality to it to make it work.

Its benefits:

* Saving software professionals time and energy
* More Secure
* Allowing coders to focus on tasks more specific to their project
* Creating clean and adaptable code
* Avoid duplicate Codes

**Task 4:**

* What is the most popular in pc and smartphones?
  + In pc:
    1. Intel Core i7-12700H
    2. Intel Core i9-12900H
    3. Intel Core i7-12800H
    4. AMD Ryzen 7 6800H
    5. Intel Core i5-12500H
  + In smartphones:
    1. Apple A15 Bionic
    2. Dimensity 9000 Plus (Media Teck)
    3. Snapdragon 8 Plus Gen1
    4. Dimensity 9000 (Media Teck)
    5. Snapdragon 8 Gen1

**Task 5:**

* **How to make Recursion faster than iteration on a processors that doesn’t support multithreading?**

By Using Tabulation

**Task 6:**

* what is hashtables ? why we use hash tables in unordered list? [[3]](#r4)

A **hash table** is a type of data structure that stores key-value pairs. The key is sent to a hash function that performs arithmetic operations on it. The result (commonly called the hash value or hash) is the index of the key-value pair in the hash table.

Example:

Let table Size=7

ab,27 1 1

a=0, b=1, a+b=1, 1% table Size =1

to prevent duplication in hash values:

bdb=1\*26\*26+3\*26+1=755%7=6

**Task 7:**

* **how to print the error type for the user in try catch**?[[4]](#r5)

try:

someFunction()

except Exception as ex:

template = "An exception of type {0} occurred. Arguments:\n{1!r}"

message = template.format(type(ex).\_\_name\_\_, ex.args)

print message

**References:**

1. <https://www.educative.io/answers/anaconda-vs-miniconda> [htt ps://www.techopedia.com/definition/27857/thread-operating-systems](https://www.techopedia.com/definition/27857/thread-operating-systems)

1. <https://www.codecademy.com/resources/blog/what-is-a-framework>
2. <https://www.educative.io/answers/what-is-a-hash-table>
3. <https://stackoverflow.com/questions/9823936/how-do-i-determine-what-type-of-exception-occurred>