Task 1:

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. Use the conda install command to install 720+ additional conda packages from the Anaconda repository.

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.

In other words, miniconda is a *mini* version of Anaconda. Miniconda ships with just the repository management system and a few packages. Whereas, with Anaconda, you have the distribution of some 150 built-in packages.

Task 2:

Clean code

```
for (int j=0; j<34; j++) {
  s += (t[j]*4)/5;
}
```

to

```
int realDaysPerIdealDay = 4;
const int WORK_DAYS_PER_WEEK = 5;
int sum = 0;
for (int j=0; j < NUMBER_OF_TASKS; j++) {
  int realTaskDays = taskEstimate[j] * realDaysPerIdealDay;
  int realTaskWeeks = (realdays / WORK_DAYS_PER_WEEK);
  sum += realTaskWeeks;
}
```

Task 3: what is framework?

A framework in programming is a tool that provides ready-made components or solutions that are customized in order to speed up development

The purpose of a framework is: to assist in development, providing standard, low-level functionality so that developers can focus efforts on the elements that make the project unique.

The use of high-quality, pre-vetted functionality increases software reliability, speeds up programming time, and simplifies testing. With an active base of users and ongoing code improvements, frameworks help improve security and offer a base of support.

Disadvantages

1. Slow execution

2. Take some time to learn

3. dependency problem

Task 4:

ترتيب	إسم المعالج	أحد الهواتف
1#	Apple A15 Bionic	Apple iPhone 13
2#	Dimensity 9000 Plus	POCO X5 GT
3#	Snapdragon 8 Plus Gen 1	Asus ROG Phone 6 Pro

ترتيب	إسم المعالج	أحد الهواتف
4#	Dimensity 9000	Vivo X80
5#	Snapdragon 8 Gen 1	OnePlus 10 Pro

PCs:

1- Intel Core i9-12900K

2- AMD Ryzen 9 5900X

3- Intel Core i5-12600K

4- AMD Ryzen 9 3950X

5- AMD Ryzen 5 3600X

Task 5: How to make recursion faster in processors that do not support multithreads

We divide the big basic problem into a number of smaller sub-problems, so the implementation time is less, and we use the method of implementation concurrently between them.

Task 6: Hash table in unordered set

- Unordered sets are containers that store unique elements in no particular order, and which allow for fast retrieval of individual elements based on their value.
- In an unordered set, the value of an element is at the same time its *key*, that identifies it uniquely. Keys are immutable, therefore, the elements in an unordered set cannot be modified once in the container - they can be inserted and removed, though.
- Internally, the elements in the unordered set are not sorted in any particular order, but organized into *buckets* depending on their hash values to allow for fast access to individual elements

directly by their *values* (with a constant average time complexity on average).

- unordered set containers are faster than set containers to access individual elements by their *key*, although they are generally less efficient for range iteration through a subset of their elements.