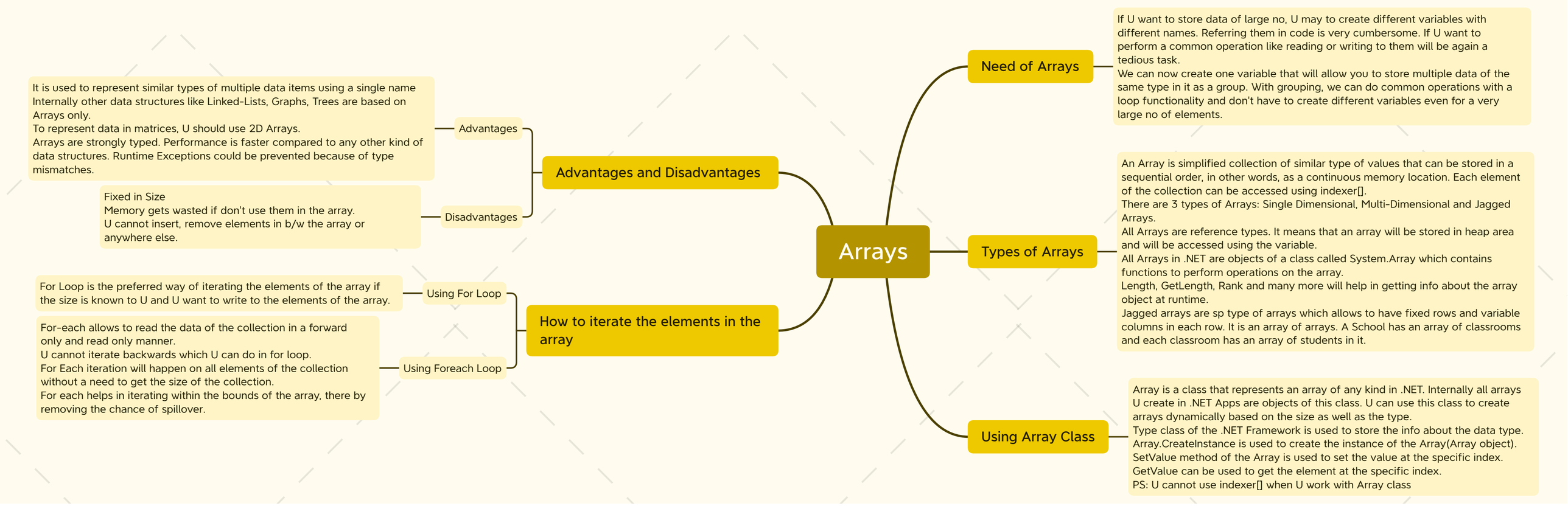
Arrays
Need of Arrays
If U want to store data of large no, U may to create different variables with different names. Referring them in code is very cumbersome. If U want to perform a common operation like reading or writing to them will be again a tedious task.
We can now create one variable that will allow you to store multiple data of the same type in it as a group. With grouping, we can do common operations with a loop functionality and don't have to create different variables even for a very large no of elements.
Types of Arrays
An Array is simplified collection of similar type of values that can be stored in a sequential order, in other words, as a continuous memory location. Each element of the collection can be accessed using indexer[].
There are 3 types of Arrays: Single Dimensional, Multi-Dimensional and Jagged Arrays.
All Arrays are reference types. It means that an array will be stored in heap area and will be accessed using the variable.
All Arrays in .NET are objects of a class called System.Array which contains functions to perform operations on the array.
Length, GetLength, Rank and many more will help in getting info about the array object at runtime.
Jagged arrays are sp type of arrays which allows to have fixed rows and variable columns in each row. It is an array of arrays. A School has an array of classrooms and each classroom has an array of students in it.
Using Array Class
Array is a class that represents an array of any kind in .NET. Internally all arrays U create in .NET Apps are objects of this class. U can use this class to create arrays dynamically based on the size as well as the type.
Type class of the .NET Framework is used to store the info about the data type.
Array.CreateInstance is used to create the instance of the Array(Array object).
SetValue method of the Array is used to set the value at the specific index.
GetValue can be used to get the element at the specific index.
PS: U cannot use indexer[] when U work with Array class
Advantages and Disadvantages
Advantages
It is used to represent similar types of multiple data items using a single name
Internally other data structures like Linked-Lists, Graphs, Trees are based on Arrays only.
To represent data in matrices, U should use 2D Arrays.
Arrays are strongly typed. Performance is faster compared to any other kind of data structures. Runtime Exceptions could be prevented because of type mismatches.
Disadvantages
Fixed in Size
Memory gets wasted if don't use them in the array.
U cannot insert, remove elements in b/w the array or anywhere else.
How to iterate the elements in the array
Using For Loop
For Loop is the preferred way of iterating the elements of the array if the size is known to U and U want to write to the elements of the array.
Using Foreach Loop
For-each allows to read the data of the collection in a forward only and read only manner.
U cannot iterate backwards which U can do in for loop.
For Each iteration will happen on all elements of the collection without a need to get the size of the collection.
For each helps in iterating within the bounds of the array, there by removing the chance of spillover.