

**ONLINE****LEARNING**

# Introduction to Searching Techniques

## SCSJ2013 Data Structures & Algorithms

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# Objectives

1

searching technique concept

2

purpose of searching operation

# Introduction to Search

- **Searching Definition**

- process to **determine** whether an element is a **member** of a certain data set
- process of **finding the location** of an element with a **specific value** (key) within a collection of elements
- process can also be seen as an attempt to **search** for a certain **record in a file**

# Search – Key Field

- Each record contains **data field** and **key field**
- **Key field** is a group of characters or numbers used as an **identifier** for each record
- Searching can done based on the **key field**

# Search example: Table of Employee Record

| Index | employeeID | employeeIC     | empName                     | Post              |
|-------|------------|----------------|-----------------------------|-------------------|
| [0]   | 1111       | 701111-11-1234 | Ahmad Faiz<br>Azhar         | Programmer        |
| [1]   | 122        | 800202-02-2323 | Mohd. Azim<br>Mohd. Razi    | Clerk             |
| [2]   | 211        | 811003-03-3134 | Nurina Raidah<br>Abdul Aziz | System<br>Analyst |

# Search Technique

- Among Popular searching techniques:

- Sequential search
- Binary Search
- Binary Tree Search
- Indexing

will discuss  
further

# Search Technique

- **Basic searching** techniques
  - sequential search and binary search.
  - only suitable for small sets of data.
- **Sequential search** can be implemented on **sorted** and **unsorted** list,
- **Binary search** can be implemented only on sorted list.
- **Hashing** and **indexing** are suitable for searching large sets of data.

# Internal and External Search

- Searching can be implemented in two cases:

External  
search

- very large size of data
- Half of the data in RAM while half of the data is in the secondary storage.

Internal  
search

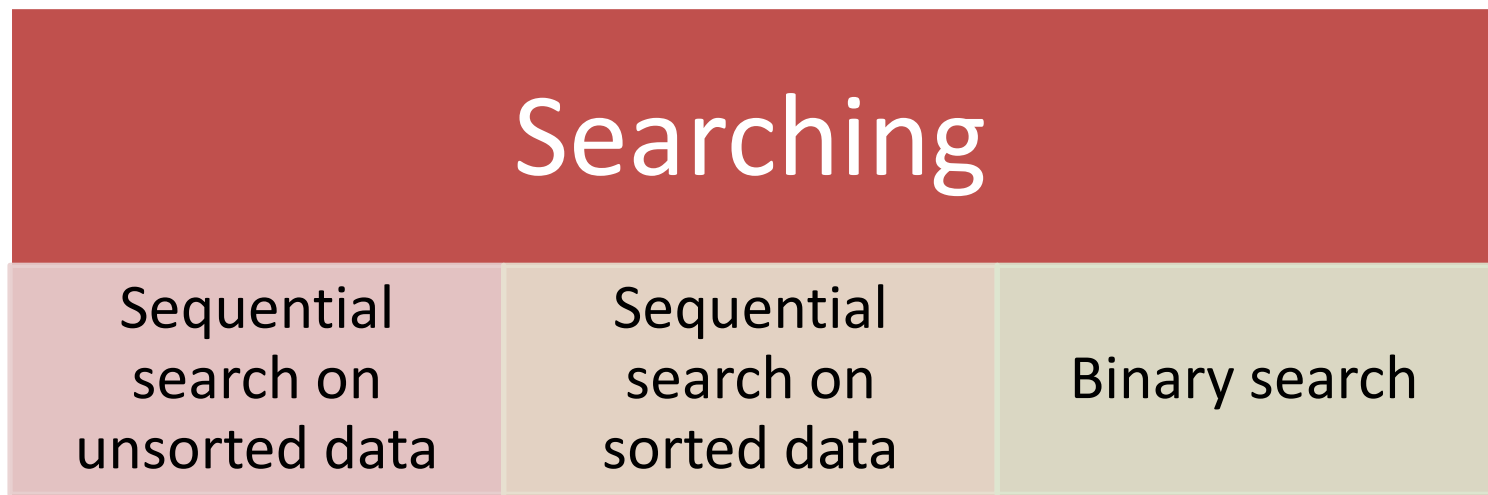
- small size of data
- RAM



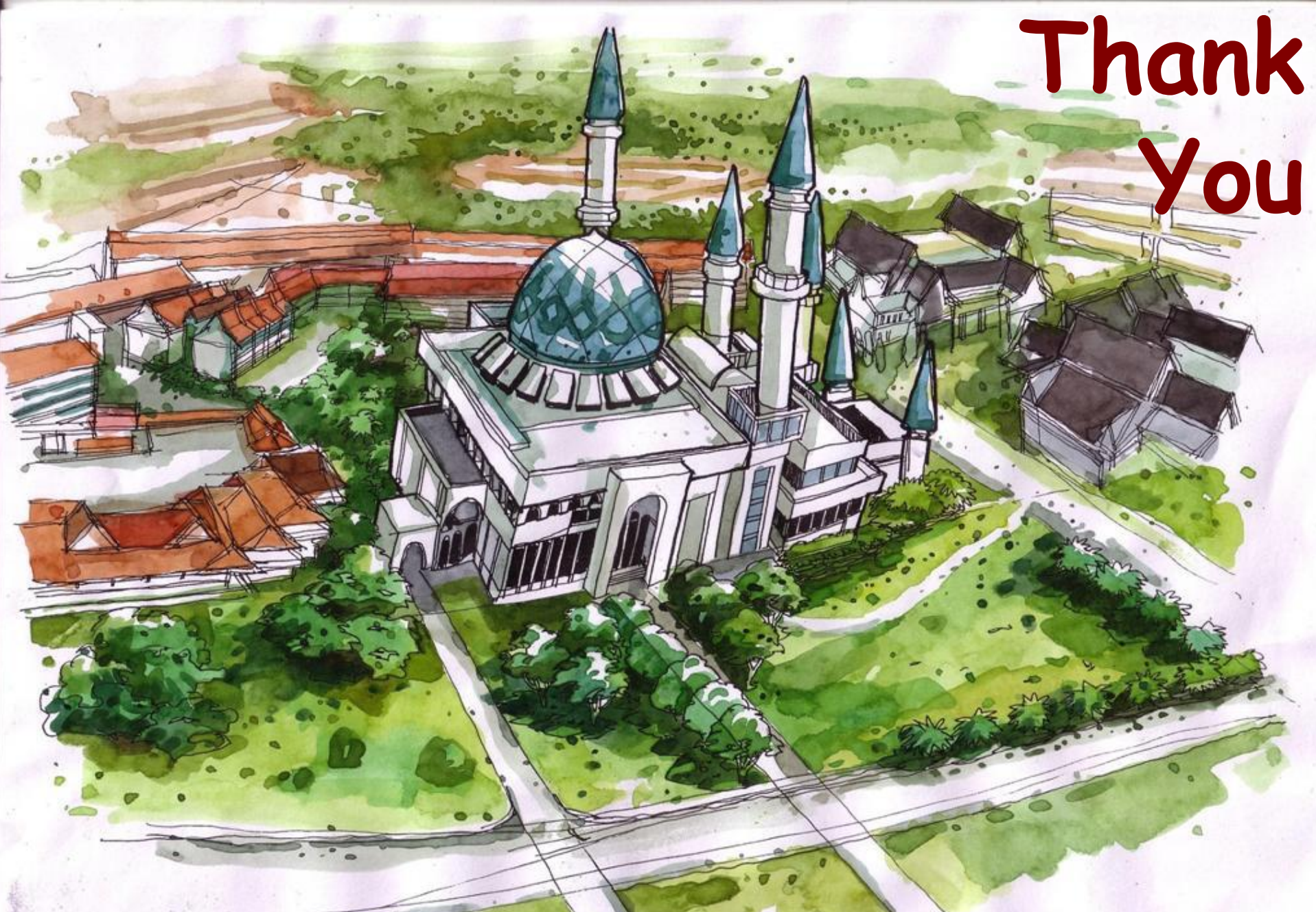
# Summary

- Searching is a **process** to **allocate** an element in a list and **return the index** of the searched element.
- Next class content on searching techniques

Search Technique



# Thank You



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