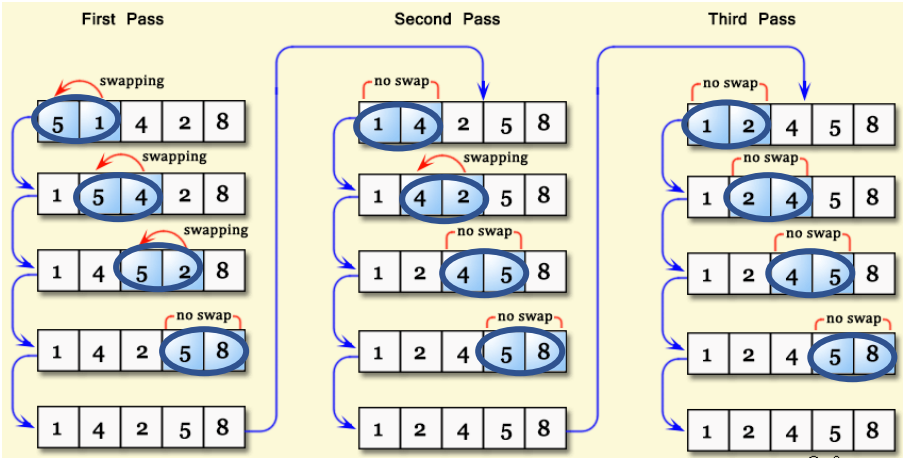
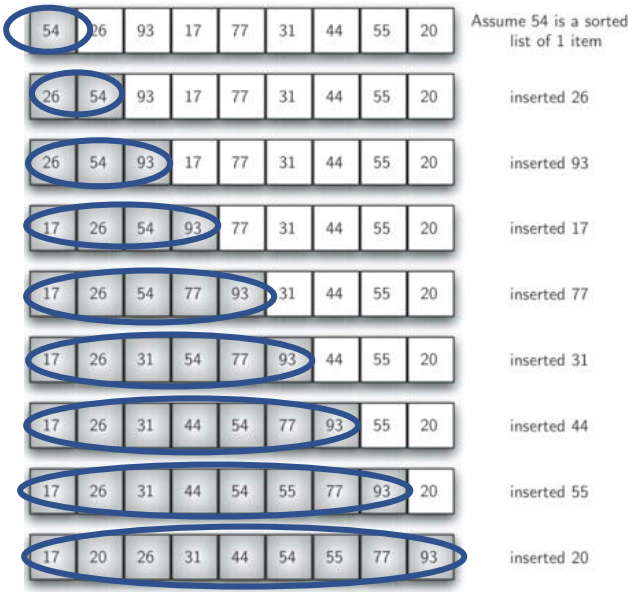
Sorting Algorithms

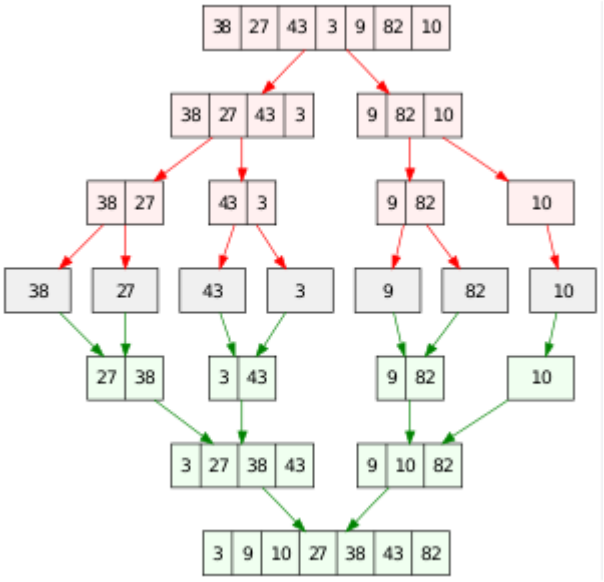
Bubble Sort



Insertion sort

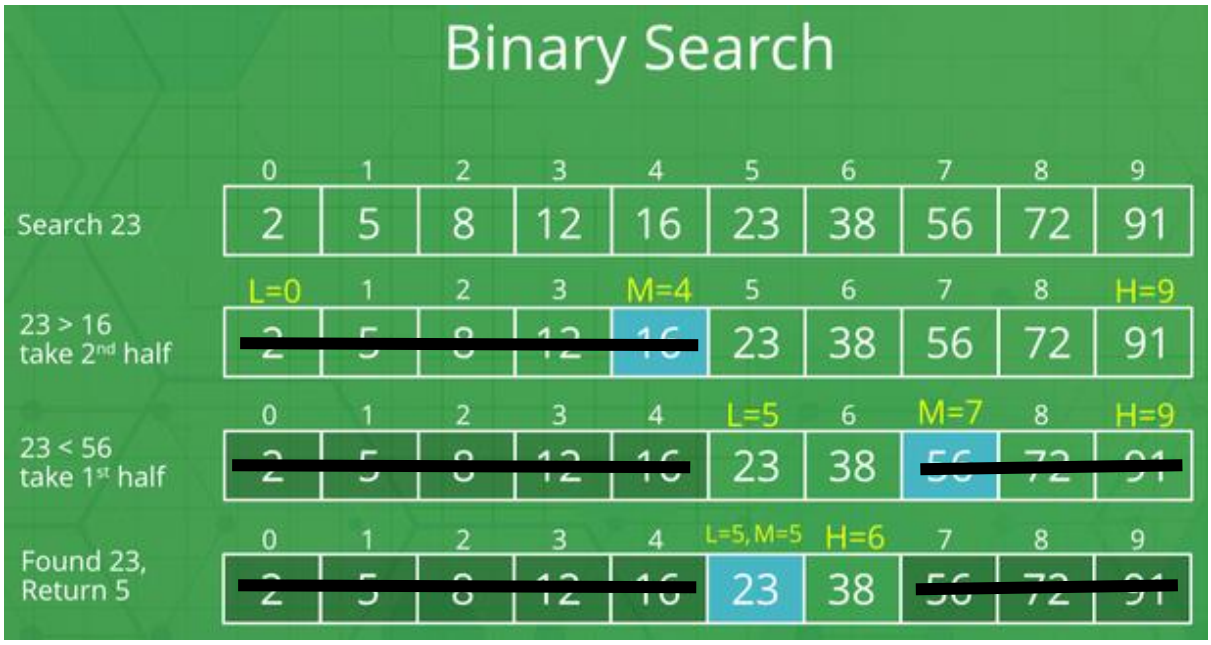


Merge sort

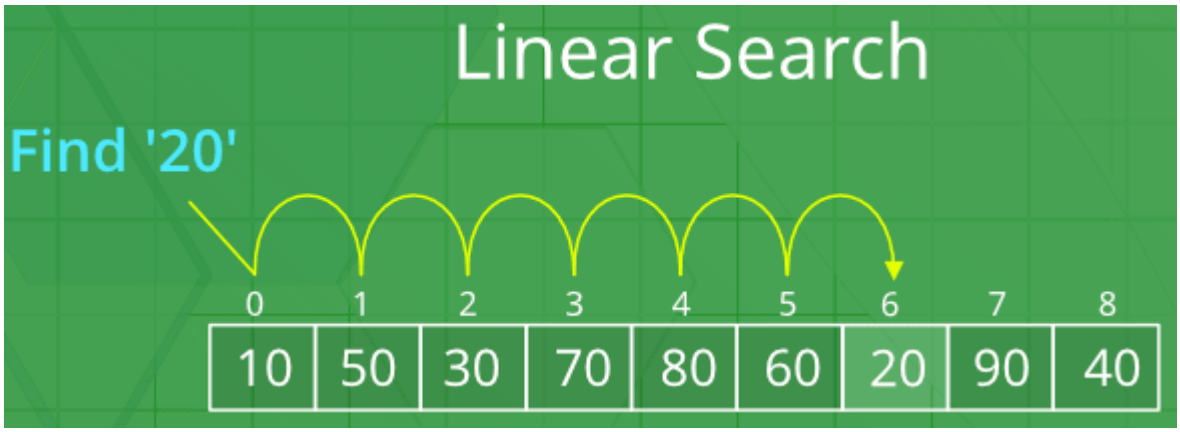


Searching Algorithms

Binary Search (It can take place only if the list is an ascending or descending order)



Linear Search (It is carried out if he list is unordered)



Operators

Operator	Function	Example	Result
DIV //	Quotient	19 Div 4 19//4	4
MOD %	Remainder	19 MOD 4 19% 4	3
^	Exponential	2^3	8

To produce Robust programming Use **Defensive design** by:

1. Validation and authentication
2. Maintainability
3. Testing.

Maintainability = Comments; Indentation; Meaningful names; Sub-programs

Validation – check data meets certain criteria before being used in a program

	Validation check	Purpose
	Range Check	Data within specified range between 5 and 10
	Presence check	Field is not empty
	Format check	e.g dd/mm/yyyy postcode AA99 9AA
	Look up table	Checks data against a table of acceptable values
	Length check	e.g Tel number has 11 characters.

Authentication – confirming user before allowing access

Strong password

Limit failed attempts

Change password regularly

Ask for random selection of characters from password.