Phase 2 :

Day 1 01-08-2022

9 days

SQL Self learning using MySQL Database -🡪

JDBC

Hibernate

JEE Servlet and JSP

Searching and Sorting technique without collection framework.

Searching : Searching is use to search a particular elements from array.

int num[]={4,1,6,9,6,7,3,2,5}

Linear Search : Linear search also known as orderly search or sequential search.

Adv

When a key element matches the first element in array. Then linear search algorithms is best case.

This search technique good for small to medium array.

In this technique array doesn’t need to be sorted.

Dis Adv

When a key element matches the last elements in the array or the key elements doesn’t matches any element then linear search algorithms is worst case.

Binary Search

Binary search is one of the fastest searching algorithms. It is used to find the location of an elements in an array. It works on the principle of divided and conquer rule or technique.

If we want to use binary search technique on array. The array must be sorted order we can’t use binary search on un sorted array.

Adv

For large list of array or elements.

Dis Adv

It work only on sorted array

It require more stack space.

1. 100

66

1 to 50 no need to check

50 to 100

50 to 75

62 to 75

Exponential Search The term exponential search or term mainly apply for infinite array elements. This technique apply as mathematically rising in powers.

0,2,4, 8,16,32

1,3,9,27, etc

This technique internally use binary search and binary search need elements in sorting order.

Linear search : small to medium array

Binary search : finite array large array

Exponential search : infinite array large array

Sorting technique

Sorting is use to sort the elements from an array may be ascending order or descending order.

Selection Sort : it is type of simplest sorting technique. In This algorithms it will first find the smallest elements in the array and swap it with the element in first position, then it will find the second smallest elements and swap it with the elements in second position and it will keep on doing this until entire array is sorted. If we are planning to do sorting in ascending order. If we are planning to do descending order then we have to check largest elements.

Adv : The main advantage of the selection sort is that it perform well on small array elements.

Div Adv : The primary disadvantage of the selection sort is its poor efficiency when dealing with huge list of elements.

It required extra variable to hold min or max value.

Bubble Sort : The bubble sort algorithms works by repeatedly swapping adjacent elements that are not in order until the whole list of items is in sequence.

Adv : It is easy to use. And no extra space or variable is required.

Div Adv : The primary disadvantage of the selection sort is its poor efficiency when dealing with huge list of elements.

Insertion Sort : the insertion sort sorts repeatedly scan the list of items, each time inserting the items or values in unordered sequence into its correct position.

In Insertion sort the dataset by transferring one element at a time to the partially sorted array.

Merge sort :merge sort use divide and conquer rules to the sorting. This sorting algorithms good for huge array data.

Day 2 02-08-2022

SQL using MySQL Database

show databases; this is use to display all database available in our login

create database javatraining; this command is use to create the database

use javatraining; this command is use to switch to new or existing database

database is collection of tables.

table -🡪 Employee

id name salary

Pk

create table employee(id int primary key, name varchar(10), salary float);

show tables; this command is use to display all table present in your database.

desc employee; this command is use to display the structure of table.

Insert

insert into employee values(1,’Raj’,12000);

insert into employee values(2,’Ravi’,15000);

insert into employee values(3,’Ramesh’,18000);

insert into employee values(4,’Raju’,20000);

select \* from employee

select \* from employee where id=1;

select \* from employee where name = ‘Ravi’;

select \* from employee where salary > 12000;

Delete

delete from employee

delete from employee where id =4;

delete from employee where name = ‘Ramesh’;

Update

Update employee set salary = 45000

Update employee set salary = 25000 where id=1;

JDBC : Java Database Connectivity : JDBC is a API which provide set of classes and interfaces which help to connect the any RDBMS (MySQL, Oracle, db2, SQL Server etc). Using JDBC we can store, retrieve, update and delete the record using java technologies.

Steps to connect the database ie MySQL using JDBC.

1. Impor the package : import java.sql.\*;
2. Load the Driver : Driver is a pre-defined class provided by vendor whose database we are going to connect. Which help to connect the database.

4 types of driver

1. Type 1 driver or jdbc odbc bridge driver
2. Type 2 driver or jdbc native driver
3. Type 3 driver or jdbc net protocol driver
4. Type 4 driver or jdbc pure driver or jdbc thin driver

From java8 onward type 1 driver removed.

Type4 driver. This driver vendor provide use in the form of jar file. That jar file contains set of classes and interfaces which help connect the database.

Class.forName(“driverName”);

Java provided pre-defined class and name of class itself is Class and it belong to lang package. Which contains forName static method.

JDBC throw checked exception so we have to write throws or try-catch block mandatory.

1. Establish the connection :

Connection con = DriverManager.getConnection(“”,””,””);

1st parameter url

2nd parameter username

3rd parameter password

Types of Statement

1. Statement : Statement is a interface which provide set of methods which help to do the operation on table like insert, delete, update and retrieve.

Syntax to create the reference of Statement.

Statement stmt = con.createStatement();

1. PreparedStatement :