ACTIVITY 4

**STEP 1:- RESEARCH :**-

what is a database ?

A database is an organized collection of structured information, or data, that is typically stored and accessed electronically from a computer system. Databases are managed by a software system called a data base management system .which allows for efficient storage, retrieval, modification, and organization of data. They are used by everything from social media sites to healthcare providers to store and manage vast amounts of information.

The four main types of databases are relational, NoSQL, object-oriented, and hierarchical. Other types, like network and graph databases, are also significant, but these four represent the most common categories discussed when classifying databases by their structure and data management methods.

**Relational databases :** Store data in a structured format with tables that have rows and columns, using SQL for data manipulation and query.

**NoSQL databases:** Are non-relational and can handle large volumes of unstructured or semi-structured data, with different types like document, key-value, and graph databases.

**Object-oriented databases:** Store data as objects, which are similar to objects used in object-oriented programming languages.

**Hierarchical databases:** Organize data in a tree-like, parent-child structure, where each "child" record has only one "parent".

<https://www.geeksforgeeks.org/dbms/what-is-database/>

<https://rivery.io/data-learning-center/database-types-guide/>

Mileage of cars taken from :- :-<https://www.zurichkotak.com/knowledge-center/car-insurance/highest-mileage-cars-in-india>

<https://www.zigwheels.com/newcars/best-mileage-cars>

**STEP 2 ANALYSIS:-**

1. Define a structure First, define a struct to represent a single record or entry in your "database." This struct will contain various members (fields) that store the data for each record.
2. Creating and Storing Records:- You can store multiple records using an array of structures or dynamically allocated memory.
3. Define an array
4. Use of loops

**STEP 3:- IDEATE:-**

HOW TO USE STRUCT IN C

ALGORITHM

STEP 1:- START

STEP 2:- DEFINE STRUCT CAR MILEAGE DATABASE

STEP 3:- CREATING AN ARRAY

STEP 4 :- INITIALIZE A LOOP

STEP 5:- DISPLAY ALL VALUES

STEP 6:- END

**STEP 4:- BUILD:-**

#include <stdio.h>

struct car {

float mileage;

char name[100];

};

int main() {

struct car cars[50];

int n;

printf("enter number of cars:- ");

scanf("%d",&n);

struct car temp;

for(int i=0;i<n;i++){

printf("\n enter car name:- ");

scanf("%s",&cars[i].name);

printf("\n enter car mileage :- ");

scanf("%f",&cars[i].mileage);

}

for(int i=0;i<n;i++){

printf("\nCar name: %s",cars[i].name);

printf("\nCar mileage: %f",cars[i].mileage);

}

for(int i=0;i<n-1;i++){

for(int j = i+1;j<n;j++){

if(cars[i].mileage>cars[j].mileage){

temp=cars[i];

cars[i]=cars[j];

cars[j]=temp;

}

}

}

printf("\n---------car sorted by mileage\n------------");

for(int i=0;i<n;i++){

printf("car name ;%s",cars[i].name);

printf("mileage :%.2f\n",cars[i].mileage);

}

return 0;

}

**STEP 5:- TEST**

enter number of cars:- 4

enter car name:- bmwxm

enter car mileage :- 61

enter car name:- bmw

enter car mileage :- 59

enter car name:- hondahybrid

enter car mileage :- 27

enter car name:- swift

enter car mileage :- 23

Car name: bmwxm

Car mileage: 61.000000

Car name: bmw

Car mileage: 59.000000

Car name: hondahybrid

Car mileage: 27.000000

Car name: swift

Car mileage: 23.000000

---------car sorted by mileage------------

car name ;swiftmileage :23.00

car name ;hondahybridmileage :27.00

car name ;bmwmileage :59.00

car name ;bmwxmmileage :61.00

**STEP 6:- IMPLIMENTATION**