

DS Assignment 3

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Program :-

/Load Balancing: For example, imagine you have a set of servers that handle requests for a web application. The key to load balancing is using the hash value of a client's IP address or a request ID to determine which server should handle the request. The hash function is typically designed so that the data is evenly distributed across the servers, ensuring that no single server is overloaded. Write a program of a load balancing system using hashing, where a basic hash table for mapping incoming requests to a set of servers./*

```
#include <iostream>
using namespace std;

int main(){

    // assigning variables accordingly
    int sr,h_size;
    string ans, choice, bl;
    // Taking input for no. of sservers
    cout << "Please entre the available number of servers\n";
    cin >> sr;
    //Taking input for hash table size
    cout << "How many ids do you want to access\n";
    cin >> h_size;
    int id, id_num, h_val2;
    int id2[h_size];
    // Taking input for client request id
    cout << "Do you have a specific number of ids\n";
    cin >> ans;

    if(ans=="yes" || ans=="YES"){
        cout << "Please enter the ids\n";

        for(int i=0; i<h_size; i++){
            cin >> id2[i];
        }
    }
}
```

```

cout << "For which server id do you want to find the location";
cin >> id_num;
h_val2 = id_num % h_size;
cout << "The server assigned is---"<<h_val2;

}
cout << "Ok! so you want to go dynamically\n";
cout << "Please enter the ids\n";
do{

    while(true){
        cin >> id;
        cout << "According to this\n";
        int h_val = id % h_size;
        cout << "The server allocatd to you is--" << h_val << "\n";
        if(bl=="no"){
            break;
        }
    }
    cout << "Do you want to continue\n";
    cin >> choice;
    if(choice=="no"){
        break;
    }
}while(true);

return 0;
}

```

Output:-

Output

```
Please entre the available number of servers
2
How many ids do you want to access
3
Do you have a specific number of ids
yes
Please enter the ids
11
12
13
For which server id do you want to find the location2
The server assigned is---20k! so you want to go dynamically
Please enter the ids
12
According to this
The server allocatd to you is--0
```

Output

```
Please entre the available number of servers
2
How many ids do you want to access
3
Do you have a specific number of ids
no
Ok! so you want to go dynamically
Please enter the ids
11
According to this
The server allocatd to you is--2
```

