



Database

Introduction

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Data, Information, knowledge, and Intelligence

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Solution for Data Management

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Data Store in Database Management System





Introduction

Learning Objective

- Understand the need for Database Management System (DBMS)
- Understand the pros and cons of different DBMS
- Understand how we store data in DBMS

OBJECTIVES



Introduction



2023



Database Management System

Data, Information, Knowledge, Intell...



Data

\$22963



Database Management System



Data

\$22963

Information

Bitcoin Share on
31 Jan 2023



Database Management System

Data, Information, Knowledge, Intell...



Data

\$22963



Information

Bitcoin Share on
31 Jan 2023



Knowledge

Bitcoin Share on
1 Jan 2023 is
only \$16605



Database Management System

Data, Information, Knowledge, Intelligence



Data

\$22963



Information

Bitcoin Share on
31 Jan 2023



Knowledge

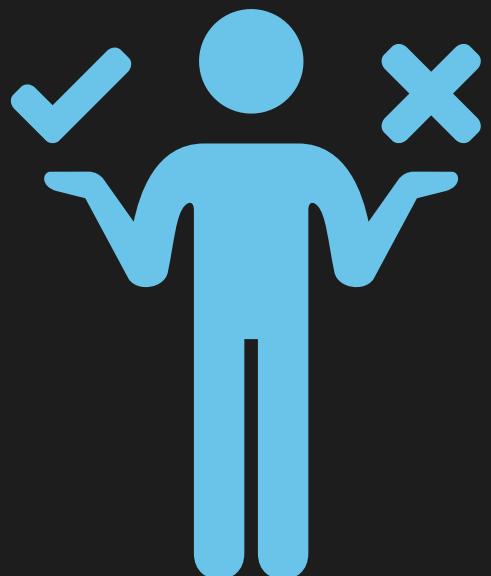
Bitcoin Share on
1 Jan 2023 is
only \$16605

Intelligence

Buy
or
Don't?



Data, Information, Knowledge, Intell...



Buy vs Don't

Data you have about bitcoin

- \$16605 on 1st Jan
- \$22963 on 31st Jan

IS IT ENOUGH?

WHAT ELSE DO WE NEED?



Data, Information, Knowledge, Intell...

Data you need from bitcoin to make decision

- At least price from 1st to 31st Jan 2023.
- Get data about their price as much as we can get



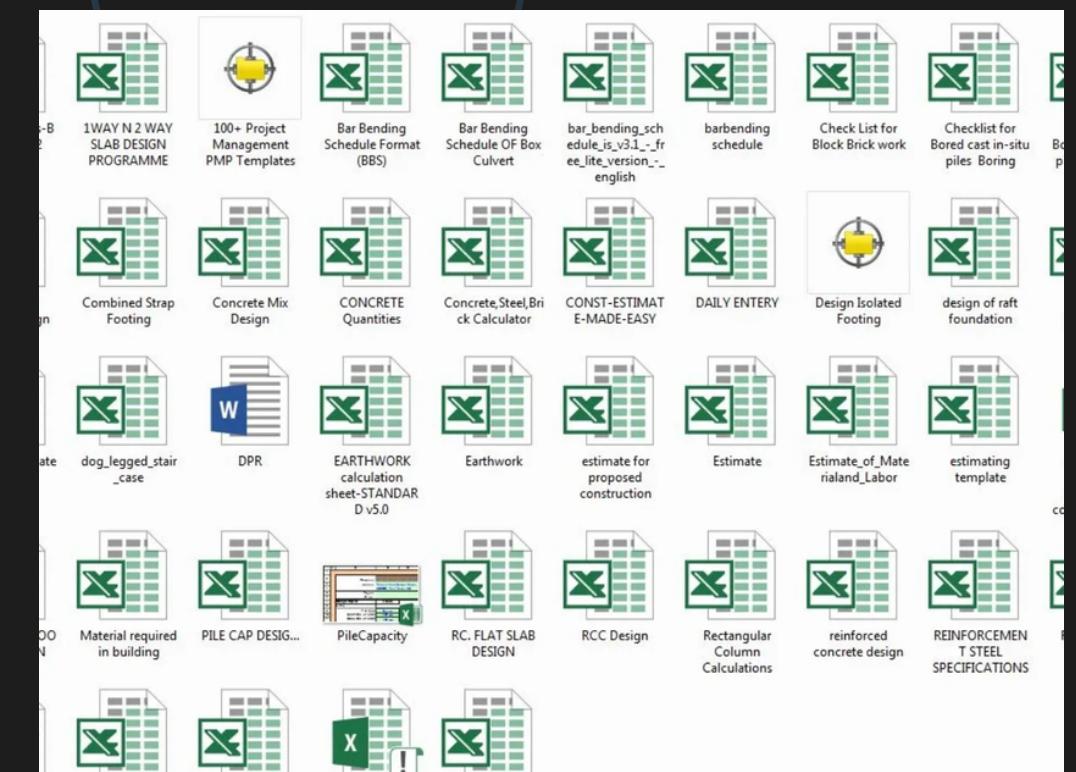


Database Management System

2023

Data, Information, Knowledge, Intell...

Data we get





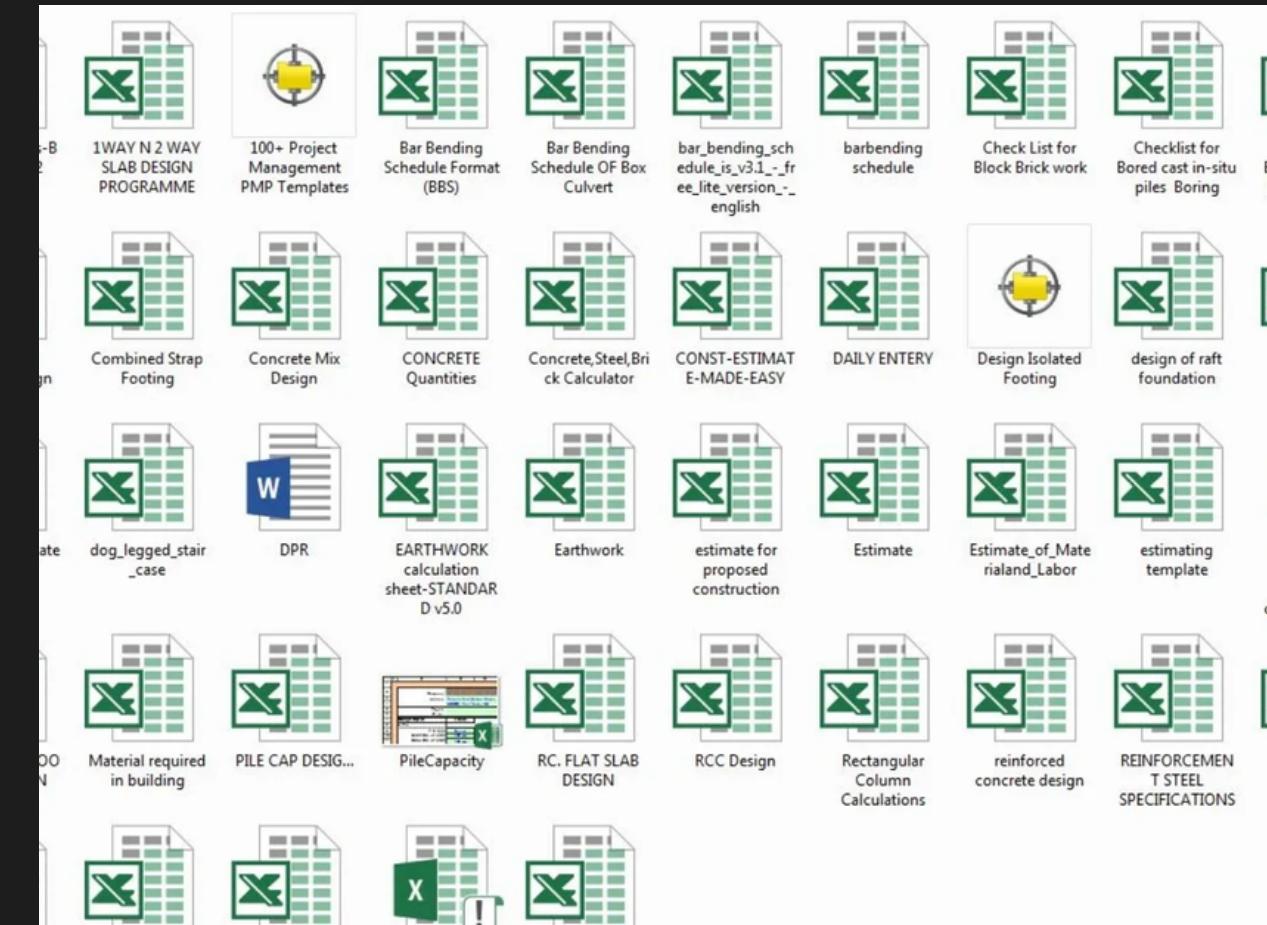
Solution for Data management

File System

- A collection of individual file accessed by application program

Limitation

- Separated and Isolated Data
- Data Duplication
- Application Program dependencies
- Incompatible files
- Lack of Data Sharing



Solution for Data management

Database Solution

- Database
 - A Structure that contains data
- Organize Data Through
 - Entities
 - Attributes
 - Relationship





Database Management System

Solution for Data Management

- A Program or a collection of programs through which users interact with a database
- Popular DBMS
 - Microsoft Access
 - MySQL
 - PostgreSQL
 - MongoDB (NoSQL)

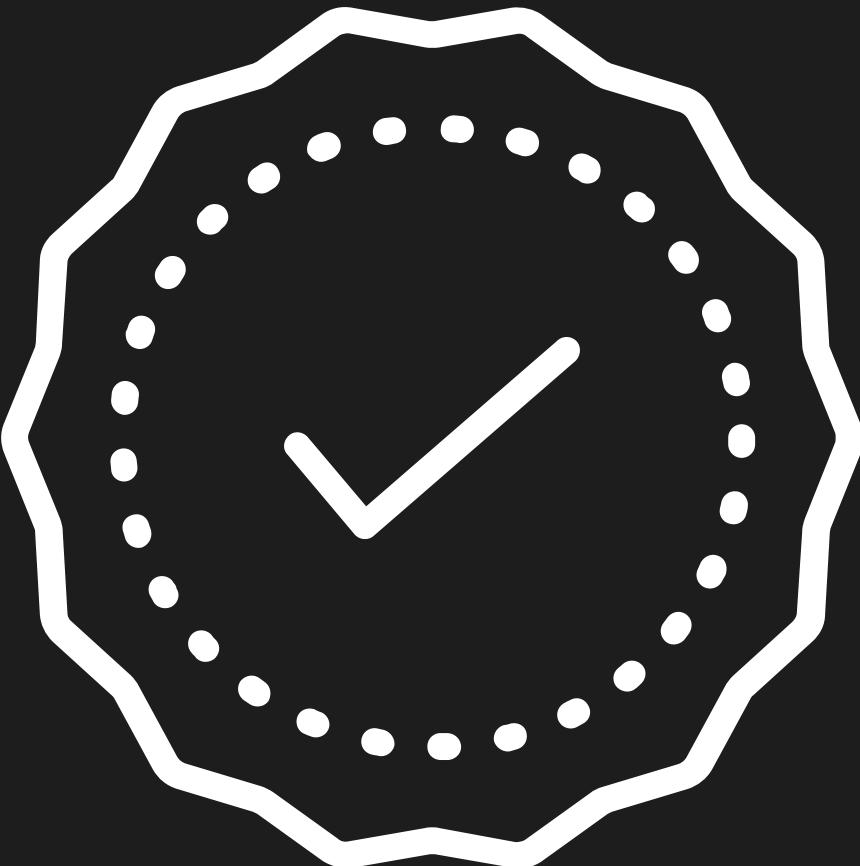




Solution for Data management

Advantage of DBMS

- Getting more information from the same amount of data
- Sharing data
- Balancing conflicting requirements
- Controlling redundancy
- Facilitating consistency
- Referential integrity
- Expanding Security
- Increasing productivity
- Providing data independence





Solution for Data management

Disdvantage of DBMS

- Increased complexity
- The greater impact of failure
- More difficult recovery
- Larger file size





Solution for Data management

When not DBMS?

- The database is small with a simple structure.
- Applications are simple, special purpose and relatively static
- Applications have real-time requirements
- Multi-user access to data is not required

When?

Data Stored in DBMS

A Database contains

- User Data
- Metadata
- Indexes
- Application Metadata





Database Management System

Data Store in DBMS

User Data

- Data users work directly by entering, updating and viewing
- For our purposes, data will be generally stored in tables with some relationship between tables.
- Each table has one or more columns. A set of columns forms a database record.





Database Management System

Data Store in DBMS

Meta Data

- Data about data
- Data that describe how user data are stored in terms of the table name, column name, data type, length, primary keys, etc.
- Metadata are typically stored in System table or system catalogue and are typically only directly accessible by the DBMS or by the system administrator





Database Management System

Data Store in DBMS

Index

- In keeping with our desire to provide users with several different views of data, indexes offer an alternate means of accessing user data. **Sorting and Searching**
- Indexes allow the database to access a record without having to search through the entire table.
- Updating data requires an extra step: The index must also be updated.





Database Management System

Data Store in DBMS

Application Metadata

- Many DBMS have storage facilities for forms, reports, queries and other application components.
- Applications Metadata is accessed via the database development programs.



2023

Database Management System

Next Lesson

01

What are Entities and Attributes (Identifiers)?

02

What are Relationships? Degree, Cardinality
and Participation of Relationship





Database Management System

2023

Question



2023

Quiz

Database Management System

Microsoft team

- 5 quiz
- 1 open questions



**It's
Quiz
Time**