# EXPERIMENT NO. 02

**Learning Objective:** Students should be able to draw a Data Flow Diagram.

**AIM:** Sketch a DFD (up to 2 levels)

**Tools:** Draw.io, word, Canva

**Theory:** Data Flow Diagrams (DFD) play a pivotal role in software engineering by providing a visual representation of the data flow within a system. These diagrams offer a comprehensive and intuitive way to depict a software application's processes, data stores, data sources, and data destinations. DFDs are particularly useful during the early stages of system design and analysis, allowing developers and stakeholders to grasp the system's structure and functionalities. They serve as a bridge between the technical aspects of software development and the business requirements, fostering effective communication and collaboration between different stakeholders. DFDs are extensively employed in the requirements analysis phase, aiding in identifying and understanding data transformation and storage processes. The hierarchical nature of DFDs facilitates a top-down approach to system development, breaking down complex systems into manageable components. As an essential tool in the software engineering toolkit, DFDs contribute to the creation of well-structured and efficient systems, ensuring that software development aligns with the organization's goals and requirements.

**ADVANTAGES:**

1. 1. DFDs offer a clear and concise visual representation of how data flows through a system, making complex processes more understandable to a wide range of stakeholders. This visual clarity aids in effective communication between developers, designers, and non-technical stakeholders, ensuring a common understanding of the system's functionality
2. DFDs support a structured approach to system analysis by breaking down a complex system into simpler processes. This hierarchical decomposition helps in identifying key components, data stores, and interactions, allowing for a systematic analysis of the system's requirements. This structured analysis enhances the overall quality of system design.

**DISADVANTAGES:**

1. While the simplicity of DFDs is an advantage, it can also be a disadvantage when it comes to representing intricate business processes. In some cases, DFDs may oversimplify the complexity of real-world systems, leading to potential misunderstandings or oversights in the analysis and design phases.

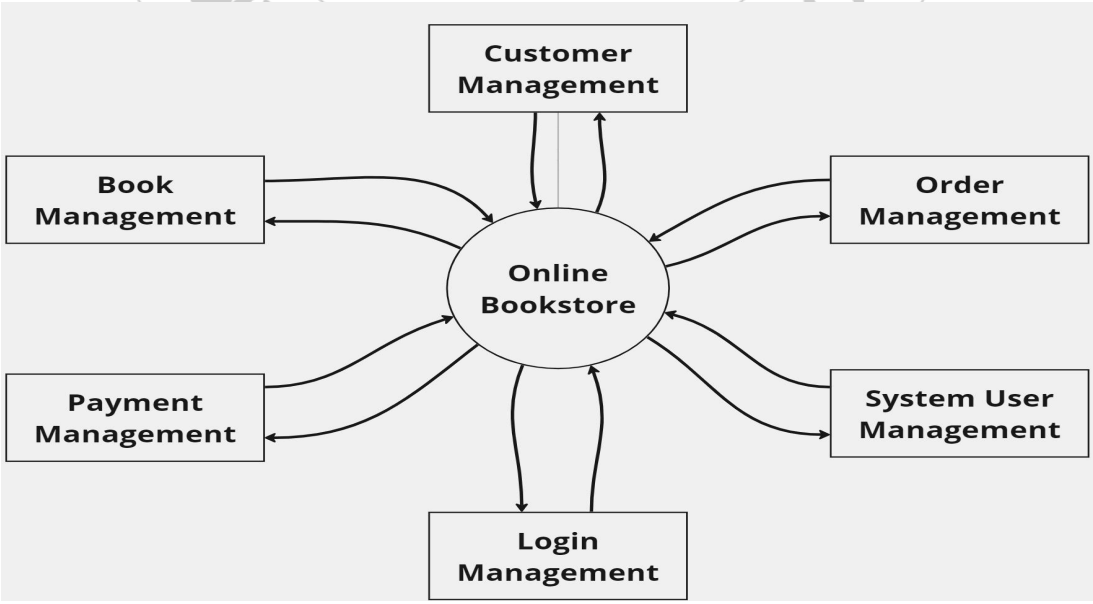
2. DFDs are static diagrams that do not inherently capture the temporal aspects of a system. They do not provide a timeline or sequence of events, making it challenging to represent time-dependent processes accurately. This limitation can be a drawback when dealing with systems that involve dynamic or time-sensitive interactions. Additional tools or documentation may be required to address this deficiency.

**APPLICATIONS:**

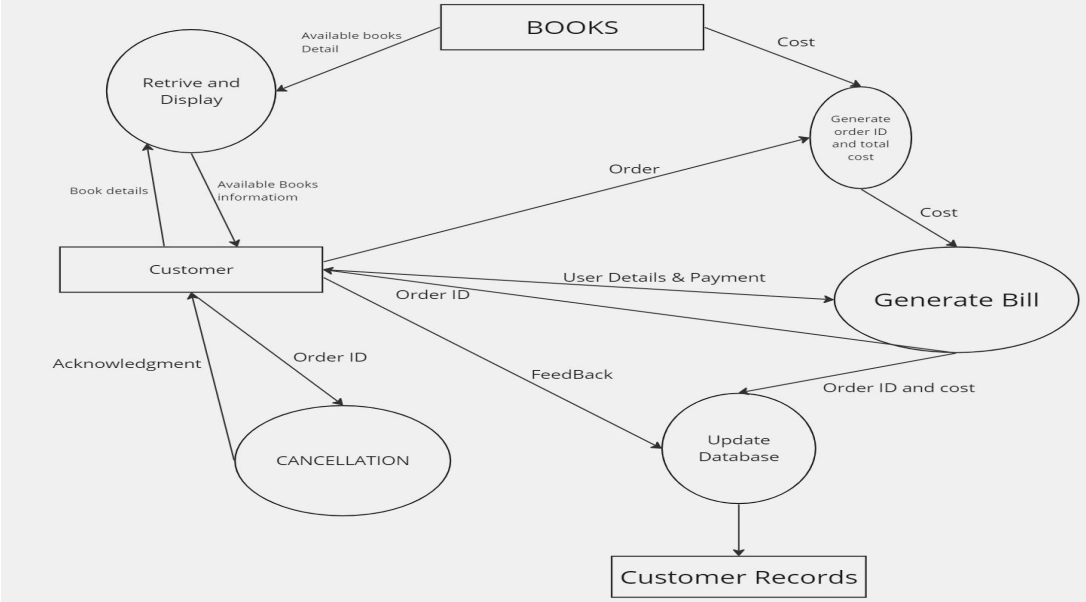
1. DFDs are widely used during the system analysis and design phase of software development.
2. DFDs are valuable tools for modeling and analyzing business processes. Organizations use DFDs to represent the flow of information within their operations, helping to identify bottlenecks, inefficiencies, or areas for improvement.
3. Data Flow Diagrams (DFDs) are instrumental in capturing and specifying system requirements.

**Design:** In the Data Flow Diagram (DFD) for the weather app, data flows seamlessly from external sources, such as weather APIs, through various processing stages, illustrating the systematic transformation and presentation of weather information. The diagram visually depicts how user inputs, data processing, and external data sources converge to provide a comprehensive and user-friendly Online Bookstore.

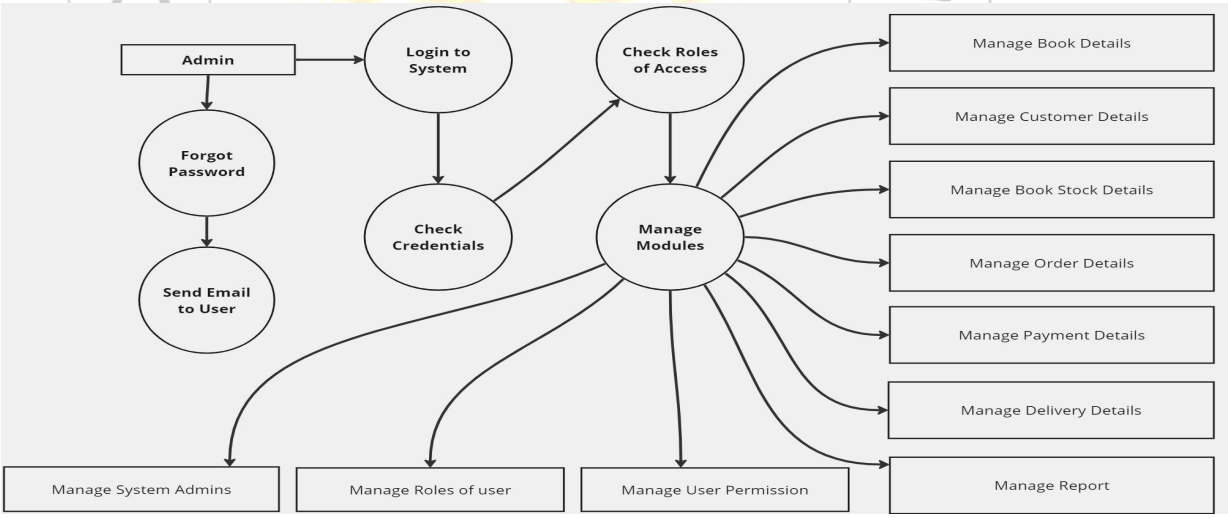
Level 0



Level 1




Level 2




**Result and Discussion:**

**Learning Outcomes:** The student should have the ability to

LO4.1 identify the need of DFD

LO4.2 define DFD

LO4.3 apply the technique to solve DFD

LO4.4 identify the advantages and disadvantages of the DFD

**Course Outcomes:** Evaluate techniques to Draw Data Flow Diagram problems.

**Conclusion:**

**Viva Questions:**

1. Explain DFD
2. Who is the use of DFD

For Faculty Use

| **Correction Parameters** | **Formative Assessment [40%]** | **Timely completion of Practical [ 40%]** | **Attendance / Learning Attitude [20%]** | |
|---|---|---|---|---|
| **Marks Obtained** | | | | |