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Practical No: - 4

Aim: - Structured data flow analysis.

Title: - Active Chat monitoring and suspicious chat detection over internet

Lab Outcome: - CSL501.2 Develop architectural models for the selected case study.

Theory: -

Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It can be manual, automated, or a combination of both.

It shows how data enters and leaves the system, what changes the information, and where data is stored.

The objective of a DFD is to show the scope and boundaries of a system as a whole. It may be used as a communication tool between a system analyst and any person who plays a part in the order that acts as a starting point for redesigning a system. The DFD is also called as a data flow graph or bubble chart.

Levels in Data Flow Diagrams (DFD)

The DFD may be used to perform a system or software at any level of abstraction. Infact, DFDs may be partitioned into levels that represent increasing information flow and functional detail. Levels in DFD are numbered 0, 1, 2 or beyond. Here, we will see primarily three levels in the data flow diagram, which are: 0-level DFD, 1-level DFD, and 2-level DFD.

0-level DFDM

It is also known as fundamental system model, or context diagram represents the entire software requirement as a single bubble with input and output data denoted by incoming and outgoing arrows. Then the system is decomposed and described as a DFD with multiple bubbles. Parts of the system represented by each of these bubbles are then decomposed and documented as more and more detailed DFDs. This process may be repeated at as many levels as necessary until the program at hand is well understood. It is essential to preserve the number of inputs and outputs between levels, this concept is called leveling by DeMacro. Thus, if bubble "A" has two inputs x_1 and x_2 and one output y, then the expanded DFD, that represents "A" should have exactly two external inputs and one external output.

1-level DFD

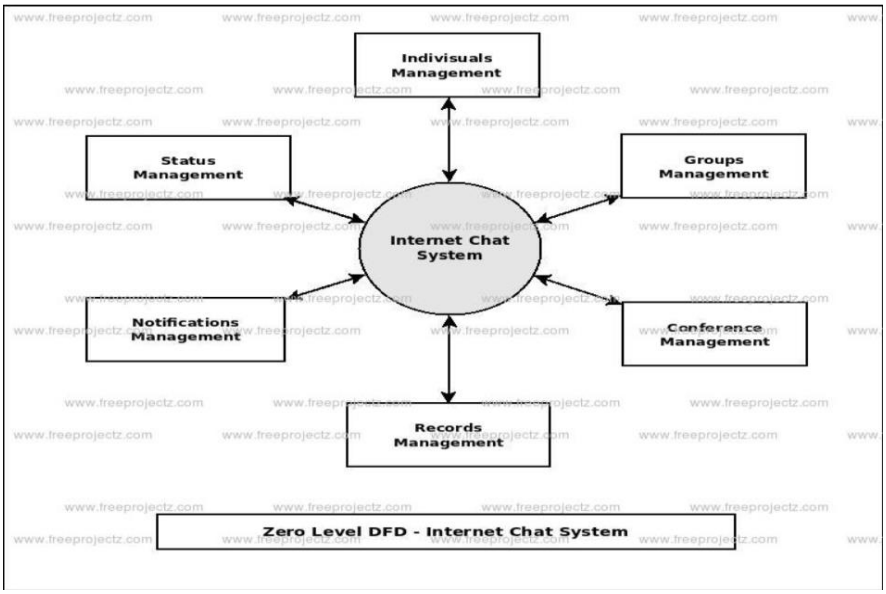
In 1-level DFD, a context diagram is decomposed into multiple bubbles/processes. In this level, we highlight the main objectives of the system and breakdown the high-level process of 0-level DFD into subprocesses.

2-Level DFD

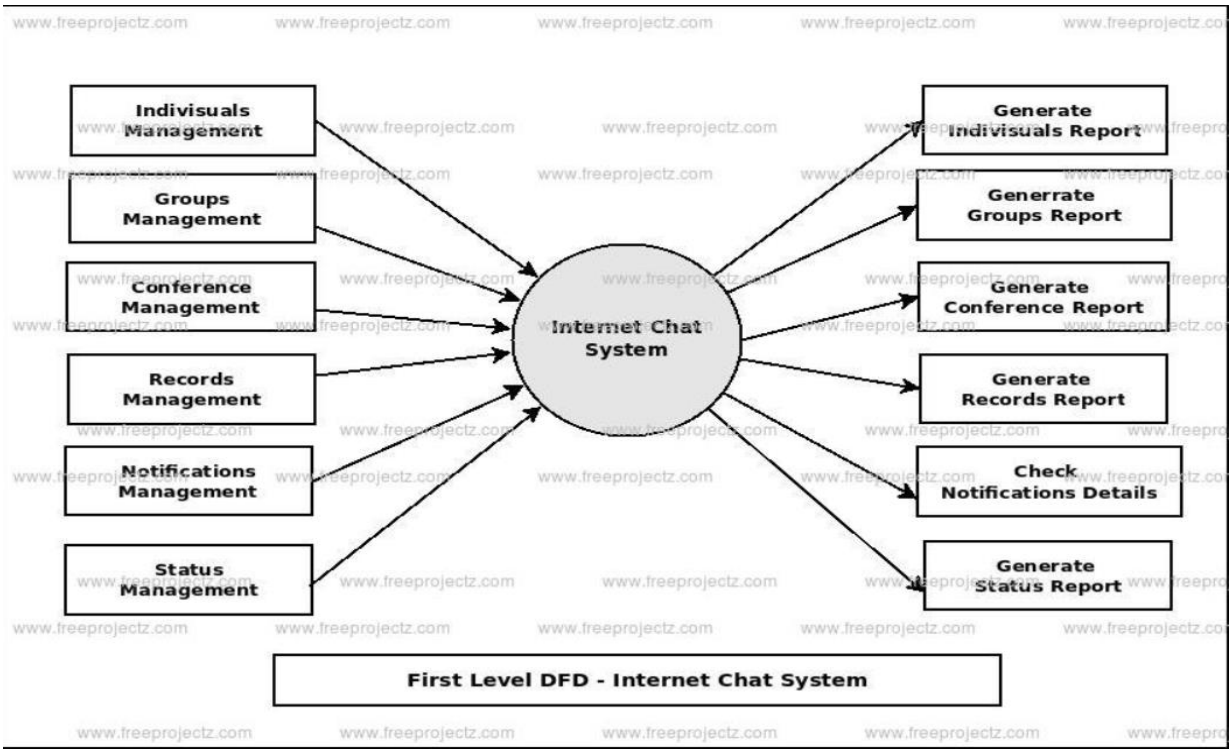
2-level DFD goes one process deeper into parts of 1-level DFD. It can be used to project or record the specific/necessary detail about the system's functioning.

Output: -

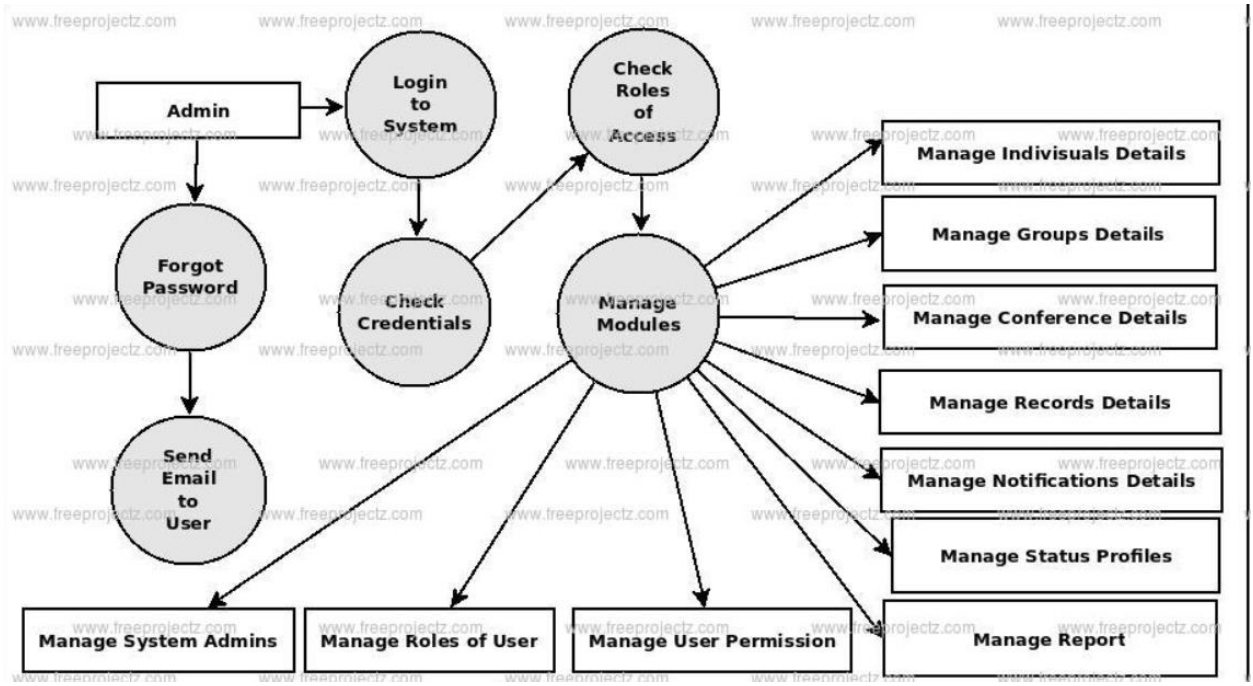
Data Flow Diagram (Level-0 DFD): -



Data Flow Diagram (Level-1 DFD): -



Data Flow Diagram (Level-2 DFD): -



Conclusion: - Here, we successfully understand and implemented the cocept of data flow diagrams.