**Architecture Design for**

***ProductivityCraft***

a desktop-based productivity application

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| Submitted to:  Dr. Amit Kumar Mondal  Associate Professor  Computer Science  and Engineering Discipline  Khulna University  Khulna | Submitted by:  M.M. Emon Hossain  Student ID: 210234  &  Sandesh Sapkota  Student ID: 210242  3rd Year, 1st Term  Computer Science  and Engineering Discipline  Khulna University  Khulna |

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| Name | Layered architecture |
| Description | Organizes the system into layers with related functionality associated with each layer. Services of each layer are used by the layers above it. |
| Reasoning | Used because new facilities are most likely to be built on top of existing systems on a regular basis such as developing new features in all the core functionalities (Pomodoro, Finance, Task Management), adapting to interactive user interface emergence. Since the development of the application is divided into a group of developers, It is ensured that each developer can work on a specific layers without affecting the other layers. |
| Advantages | Allows replacement of entire layers so long as the interface is maintained. Also, redundant facilities can be provided in each layer. |
| Disadvantages | In practice, providing a clean separation between layers is often difficult and a high-level layer may have to interact directly with lower-level layers rather than through the layer immediately below it. Performance can be a problem because of multiple levels of interpretation of a service request as it is processed at each layer. |

**Layers Representation:**

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| User Interface |
| Desktop Application Interface |

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|  | User Interface Management | | | | | |
| ProductivityCraft  Login | | Dashboard  Interface | Task Management  Interface | Pomodoro  Interface | Finance  Interface | Notification and Alert System |

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| Application Functionality | | |
| Concentration, productivity aid. | Budget tracking  System | Organize, prioritize  tasks |

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| Data Access | | |
| File 1 | File 2 | File 3 |

Figure: Layered Architecture Pattern for ProductivityCraft

**Description of the layers**

**User Interface:** Provides user interface facilities so that users can navigate through the application and perform necessary operations effectively and efficiently.

**User Interface Management:** Includes user authentication and authorization. This layer is mainly concerned with visually modularizing the whole application system so that users effortlessly understand which parts of the interface contain desired set of operations. For example, if a user wishes to update total income, finance interface

**Application Functionality:** All kinds of core functionalities of the application are implemented in this layer. Developers focus on essential logics that build up application features. In this case, pomodoro timer, budget tracking system and task management are the main attributes of this application that are developed in this layer.

**Data Access:** The data access layer connects the application's logic with data storage. When using files for data, it handles reading and writing operations.