Chapter 3

* 1. Methodology
     1. Incremental Model:

Basic Process:

**Increment Process**

**Testing**

**Coding**

**S/ W Solution Design**

**Requirement Analysis**

Fig: Incremental Software Development Life Cycle

The purposed method for developing the system consists of mainly three main steps. Firstly, data is collected and sorted for relevancy from various sources. Secondly, analysis is carried out on the collected data by examining the current market direction, tracking the industry group and specific companies after which the data is represented and scored accordingly. At last, an ANN is designed and a suitable algorithm yielding best accuracy is chosen to predict the stock value.

* + 1. Block Diagram

Retrieving

Data from

sources

Data

Filtering

Data

Normalization

Artificial

Neural

Network

Predicted

Output



Fig: Block diagram of the proposed system

First of all, a dataset is created for training the Artificial neural network. The collected data are arranged according to the format for the library we use for training.

The data is normalized before being input to the ANN. The input vectors of the training data are normalized such that all the features are zero-mean and unit variance. The target values are normalized using minmax function such that all the values are converted into the values within the range of 0 to 1. The minimum value is represented by 0 and the maximum value is represented by 1.

𝑥 − 𝑚𝑖𝑛(𝑥)

z = 𝑚𝑎𝑥(𝑥) − 𝑚𝑖𝑛(𝑥)

* 1. Project Requirements
     1. Hardware Requirements

1. Computer for processing
2. Secondary Storage Device
   * 1. Software Requirements
3. Python
   1. Machine Learning
   2. Pattern Recognition
4. Operating System
   1. Time Schedule

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Project Activity | Weeks Number | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| Investigate Problem |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Undertake problem analysis |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Develop Requirement  Specification |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Software Design |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Coding |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Testing and Debugging |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Deployment |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Maintenance |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |