**Mushroom Fungi classification using Machine Learning**

**Design Document**

**Version 1.0**



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**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 19/01/2023 | 1.0 | We all know mushrooms are presents in this world and some are edible and some are not.  The objective of the model is to help the people to understand the mushrooms that which are edible and which are poisonous. | BC 190402477 |
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6. **Introduction of Design Document**

The purpose of this document is to present a system design of Mushroom fungi classification using machine learning. Design document is to provide the documentation aid in software development giving the detail of how the software should be developed. This software design document contains textual and graphical details of the software design which include, sequence diagram, architecture design diagram, interface design and test cases. The design activity provides a roadmap o progressively makeover the requirement into the final product through a number of stages by describing the structure of the system to be implemented. This document is presented in both screenshots and in textual form.

1. **Sequence Diagrams**

A sequence diagram is an interaction diagram that shows how software interacts with the object.

1. Data:



1. Pre-processing of data:



1. Split and Train Data:



1. Machine Learning Algorithm:



1. Confusion Matrix:



1. Accuracy Evaluation:



<Provide Sequence Diagrams for each of the use case to show the task sequence of the system, Provide a sequence diagram for each of the use case provided in use case diagram>

1. **Architecture Design Diagram**

<Provide a Tiered Architecture of the system>

1. **Interface Design**

<Provide here the screenshots (GUI) of the system (Provide 3 or 4 main GUIs/interfaces, to show the most important features of the application as you are visualizing your application to be, in actual development phase. You can update these GUIs in Final Report and Final Presentation, in case they are changed after the actual development.>

1. **Test Cases**

**Test Case # 1**

**Test Case Title:** Testing the downloading mechanism of mushroom classification model

|  |  |
| --- | --- |
| Test Case No. | TC-01 |
| Test Case Name | Data |
| System | Mushroom Classification Model |
| Pre conditions | Make a administrator to access the internet |
| Actions | Go to website to download the data. |
| Expected Results | Data should be downloaded. |
| Tested By: | Bc190402477 |
| Result | Pass |

**Test Case # 2**

**Test Case Title:** Testing the mechanism of pre-processing of mushroom classification model

|  |  |
| --- | --- |
| Test Case No. | TC-02 |
| Test Case Name | Pre-processing of Data |
| System | Mushroom Classification Model |
| Pre conditions | Make an administrator should download the data in required format. |
| Actions | Open the data. |
| Expected Results | Remove null and false data from the dataset. |
| Tested By: | Bc190402477 |
| Result | Pass |

**Test Case # 3**

**Test Case Title:** Testing the mechanism of Train and Test of mushroom classification model

|  |  |
| --- | --- |
| Test Case No. | TC-03 |
| Test Case Name | Train and Test |
| System | Mushroom Classification Model |
| Pre conditions | Make a administrator open the data. |
| Actions | Split data in 70% for train model and 30% for test phase. |
| Expected Results | Data should b splitted successfully. |
| Tested By: | Bc190402477 |
| Result | Pass |

**Test Case #4**

**Test Case Title:** Testing the mechanism of applying machine learning algorithms of mushroom classification model

|  |  |
| --- | --- |
| Test Case No. | TC-04 |
| Test Case Name | Machine Learning algorithms |
| System | Mushroom Classification Model |
| Pre conditions | Data should be splitted in required percentage. |
| Actions | Apply all machine learning algorithms. |
| Expected Results | All algorithms should be applied and result should be noted down. |
| Tested By: | Bc190402477 |
| Result | Pass |

**Test Case #5**

**Test Case Title:** Testing the mechanism of Confusion Matrix of mushroom classification model

|  |  |
| --- | --- |
| Test Case No. | TC-05 |
| Test Case Name | Confusion Matrix |
| System | Mushroom Classification Model |
| Pre conditions | All algorithms properly applied. |
| Actions | Apply confusion matrix on every algorithm to check data is balanced or not. |
| Expected Results | Check results and note down. |
| Tested By: | Bc190402477 |
| Result | Pass |

**Test Case #6**

**Test Case Title:** Testing the mechanism of Accuracy Evaluation of mushroom classification model

|  |  |
| --- | --- |
| Test Case No. | TC-06 |
| Test Case Name | Accuracy Evaluation |
| System | Mushroom Classification Model |
| Pre conditions | Apply all algorithms on data and confusion matrix on every classifier algorithms. |
| Actions | Compare the results of all classifier algorithms. |
| Expected Results | All results are right. |
| Tested By: | Bc190402477 |
| Result | Pass |

**Similarly Continue the Test Cases as the above for your application. Create a test case for each of the usage scenario provided in initial phases**