

## Analysis of Different Binary Classifiers on Mushroom Dataset

**Problem Statement** - Binary Classification is classification which have two class labels. It is a supervised classification where labels are fed up to the system and classifier classifies it into two labels. In this project Logistic Regression , k-Nearest Neighbors ,Decision Trees,Support Vector Machine and Naive Bayes algorithm are going to be used and their comparison is performed on various accuracy measures.

### Dataset -

This dataset includes descriptions of hypothetical samples corresponding to 23 species of gilled mushrooms in the Agaricus and Lepiota Family Mushroom drawn from The Audubon Society Field Guide to North American Mushrooms . Each species is identified as definitely edible, definitely poisonous, or of unknown edibility and not recommended. This latter class was combined with the poisonous one.

Attribute Information: (classes: edible=e, poisonous=p)

- cap-shape: bell=b,conical=c,convex=x,flat=f, knobbed=k,sunken=s
- cap-surface: fibrous=f,grooves=g,scaly=y,smooth=s
- cap-color:  
brown=n, buff=b, cinnamon=c, gray=g, green=r, pink=p, purple=u, red=e, white=w, yellow=y
- bruises: bruises=t, no=f
- odor: almond=a, anise=l, creosote=c, fishy=y, foul=f, musty=m, none=n, pungent=p, spicy=s
- gill-attachment: attached=a, descending=d, free=f, notched=n
- gill-spacing: close=c, crowded=w, distant=d
- gill-size: broad=b, narrow=n
- gill-color: black=k, brown=n, buff=b, chocolate=h, gray=g,  
green=r, orange=o, pink=p, purple=u, red=e, white=w, yellow=y
- stalk-shape: enlarging=e, tapering=t
- stalk-root: bulbous=b, club=c, cup=u, equal=e, rhizomorphs=z, rooted=r, missing=?
- stalk-surface-above-ring: fibrous=f, scaly=y, silky=k, smooth=s
- stalk-surface-below-ring: fibrous=f, scaly=y, silky=k, smooth=s
- stalk-color-above-ring:  
brown=n, buff=b, cinnamon=c, gray=g, orange=o, pink=p, red=e, white=w, yellow=y
- stalk-color-below-ring:  
brown=n, buff=b, cinnamon=c, gray=g, orange=o, pink=p, red=e, white=w, yellow=y
- veil-type: partial=p, universal=u
- veil-color: brown=n, orange=o, white=w, yellow=y
- ring-number: none=n, one=o, two=t
- ring-type:  
cobwebby=c, evanescent=e, flaring=f, large=l, none=n, pendant=p, sheathing=s, zone=z
- spore-print-color:  
black=k, brown=n, buff=b, chocolate=h, green=r, orange=o, purple=u, white=w, yellow=y
- population: abundant=a, clustered=c, numerous=n, scattered=s, several=v, solitary=y
- habitat: grasses=g, leaves=l, meadows=m, paths=p, urban=u, waste=w, woods=d

**Expected Result** - Classification Accuracy and Comparison on above mentioned Classifiers.

Team Members -

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|----------------------|----------|
| 1. Sachin Bose       | 202CD025 |
| 2. Ramavath Nagender | 202CD017 |