The accuracy of the Linear Support Vector Machine is 77% and that of the Naïve Bayes is 63% here we can observe that Support Vector Machine has high accuracy. The reasons are.

The superior accuracy achieved by the Linear Support Vector Machine (SVM) compared to Naïve Bayes can be attributed to several key factors:

- **Complex Decision Boundaries**: Linear SVM excels when dealing with datasets featuring intricate or nonlinear class boundaries. It can identify an optimal hyperplane that effectively separates classes, even in cases where these divisions are not linearly apparent. Conversely, Naïve Bayes relies on the assumption of feature independence, which may limit its ability to capture complex decision boundaries.
- **Outlier Resilience**: Linear SVM exhibits robustness against outliers since its focus is on maximizing the margin between classes. Outliers have a reduced impact on determining the position of the hyperplane. In contrast, Naïve Bayes may be more sensitive to outliers as it relies on observed frequencies to compute probabilities.
- **Independence Assumption**: While Naïve Bayes assumes conditional independence among features, Linear SVM does not make this stringent assumption. This flexibility allows Linear SVM to handle feature dependencies more effectively.
- **Hyperparameter Optimization**: Linear SVM offers tunable hyperparameters such as the regularization parameter (C), enabling fine-tuning to optimize model performance. Careful hyperparameter tuning can substantially enhance the SVM's accuracy for a specific dataset. In contrast, Naïve Bayes has fewer hyperparameters to adjust.
- **Complex Dataset Handling**: Linear SVM tends to perform well when the dataset is more complex, as it can capture intricate decision boundaries. Naïve Bayes works better for simpler, well-separated datasets with strong feature independence.
- **Generalization Performance**: Linear SVM often exhibits good generalization performance, making it reliable for various datasets. Naïve Bayes might excel in specific cases but may not generalize as effectively to different datasets. It depends on what type of data that it handles.