CS7641 A1: Supervised Learning

Student Name
studentemail@gatech.edu

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I. Introduction - Dataset Explanation

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II. Decision Trees

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A. Dataset 1

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B. Dataset 2

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III. KNN

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IV. Boosting

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A. Dataset 1

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V. Neural Networks

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A. Dataset 1

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B. Dataset 2

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VI. SVM

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A. Dataset 1

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B. Dataset 2

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VII. Conclusion

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VIII. Example Section: The Enchanting World of Cats (by GPT-4)

A. Introduction to Cats

Cats have been companions to humans for thousands of years. They were initially domesticated in Egypt around 9,000 years ago. The relationship between cats and humans can be traced back to the mutual benefit of pest control and companionship [**?**].

B. Anatomy and Physiology

1) Sensory Organs: Cats possess highly developed sensory organs. For instance, a cat's nose has as many as 50 to 80 million scent receptors, compared to a human's 5 million [**?**].

2) Purring Mechanism: Cats have a unique purring mechanism. They produce a purring sound during both inhalation and exhalation with a consistent pattern and frequency between 25 and 150 Hertz [**?**].

C. Breeds of Cats

There are numerous breeds of cats, each with its unique characteristics. Some of the popular breeds are Persian, Maine Coon 1, and Siamese.

1) Persian Cats: Persian cats are known for their long fur and brachycephalic face. They are one of the oldest breeds of cats and are generally very docile.

2) Maine Coon: Maine Coon cats are one of the largest domesticated cat breeds. They are native to North America and are known for their intelligence and playful nature.

Fig. 1: A typical Maine Coon Cat

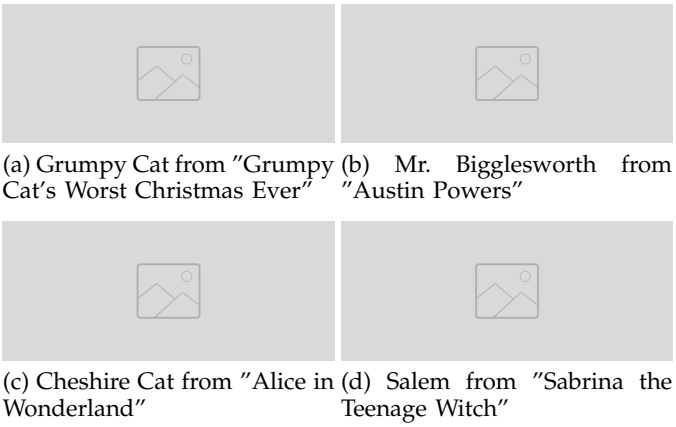
D. Fun Facts About Cats

TABLE I: Fun Facts about Cats

Fact	Explanation	Reference
Whisker Sensitivity	Whiskers are highly sensitive to detect nearby objects	[**?**]
Sleep Time	Cats sleep for 12-16 hours a day	[**?**]

E. Cats in Popular Culture

1) Movies and Literature: Cats have been featured in many movies and literature, from "The Cat in the Hat" to the "Lion King". They have a universal appeal and often symbolize mystery and agility.



(a) Grumpy Cat from "Grumpy Cat's Worst Christmas Ever"

(b) Mr. Bigglesworth from "Austin Powers"

(c) Cheshire Cat from "Alice in Wonderland"

(d) Salem from "Sabrina the Teenage Witch"

Fig. 2: Cats in Popular Movies

F. Conclusion

Cats are fascinating creatures with unique attributes. They have been a part of human culture for millennia and continue to intrigue us with their behavior, anatomy, and role in folklore and mythology. From their anatomy 1 to their representation in media 2, they are a subject of ongoing interest and study.

IX. Resources

[1] *API Reference.* Scikit-learn. https://scikit-learn.org.

[2] Nakamura, K. (2023). *ML LaTeX Template*.

[3] Lastname, F. (YYYY). *Some Article.* Some Website Name. https://example.com/example.

[4] *Some Other Article.* Another Website. https://google.com/google/dot/com.