Twitter Attribute Classification With Q-Learning on Bitcoin Price Prediction

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Abstract: *Predicting Bitcoin price using social media data often demands high computational resources due to the vast number of tweets involved. This project introduces a Q-learning-based approach that classifies Bitcoin-related tweets by specific attributes—number of followers, comments, likes, and retweets—to identify which attributes most influence price prediction. By applying sentiment analysis and reinforcement learning, we determine that tweets from users with the most followers offer the most accurate predictions while significantly reducing CPU, RAM usage, and processing time. Compared to traditional methods using all tweets, our proposed model achieves up to 12.5% higher accuracy with 88.8% less CPU consumption and 80% faster performance. This work demonstrates the effectiveness of attribute-based filtering in improving both prediction accuracy and computational efficiency.*

Keywords: Bitcoin, Q-learning, tweet attributes, sentiment analysis, reinforcement learning, Twitter, price prediction