جامعـــة الأمـيـر
سطام بن عبدالعزيز
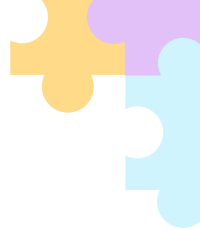PRINCE SATTAM BIN ABDULAZIZ UNIVERSITY

Sentiment Analysis for Autistic Children

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Outline

Problem Definition

• Learning about children's sentiments with autism poses a particular challenge for parents, teachers, nurses, etc.

• They usually have difficulty interpreting certain facial expressions, emotions, or tones of voice.

• This hinders their social interactions and the development of their language and behavioral skills.
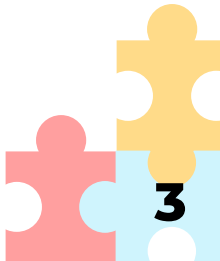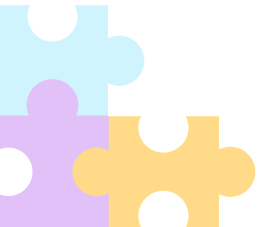
Objective

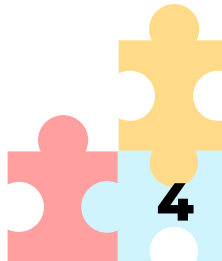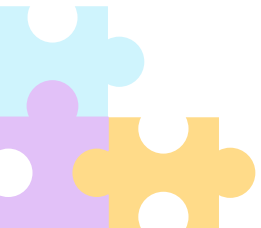1. This project enables medical practitioners, parents, nurses, teachers, etc… to upload the facial images of the autistic children to have a quick diagnosis of their feelings/sentiments.

2. Giving recommendation to autistic child family, teachers and anyone how have interacted with them.

Related Work

| Feature	System 1	System2	System3	System4	System5	Our system
Implemented scientific idea	Not implemented	Not implemented	Not implemented	Implemented	Not implemented	Implemented
Database size	Little (few photos)	Very little	Moderate	Moderate	Moderate	Important
Accuracy of Results	Almost good	Almost good	Almost good	Almost good	Almost good	High good
Easy to use	-	-	-	Yes	-	Yes
Support use from any where	-	-	-	Yes (focus on Brazilian people)	-	Yes (focus on Saudi people)
Giving recommendation	-	-	-	No	-	Yes
Free	-	-	-	-		Yes

Methodology
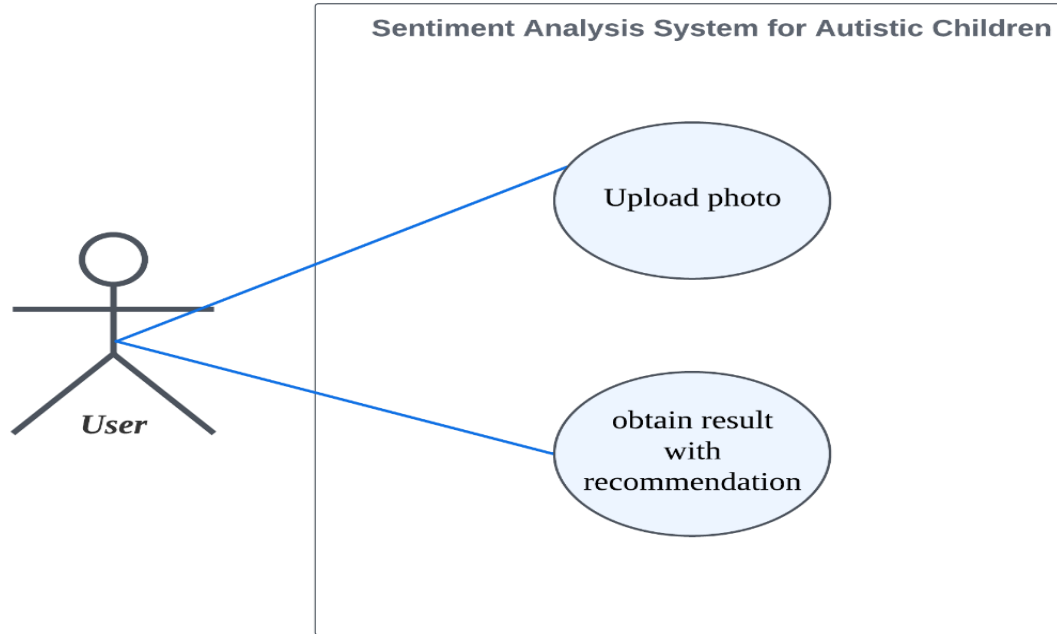
Use Case Diagram

Model Building Phases

The model building process involves several steps, including:

1. Resampling
2. Data Splitting (Train and Test)
3. Data Scaling and Dimensionality Reduction
4. Logistic Regression
5. Support Vector Machines
6. Random Forest
7. Stacking Classifiers
8. Model Building
9. Recommendation Making

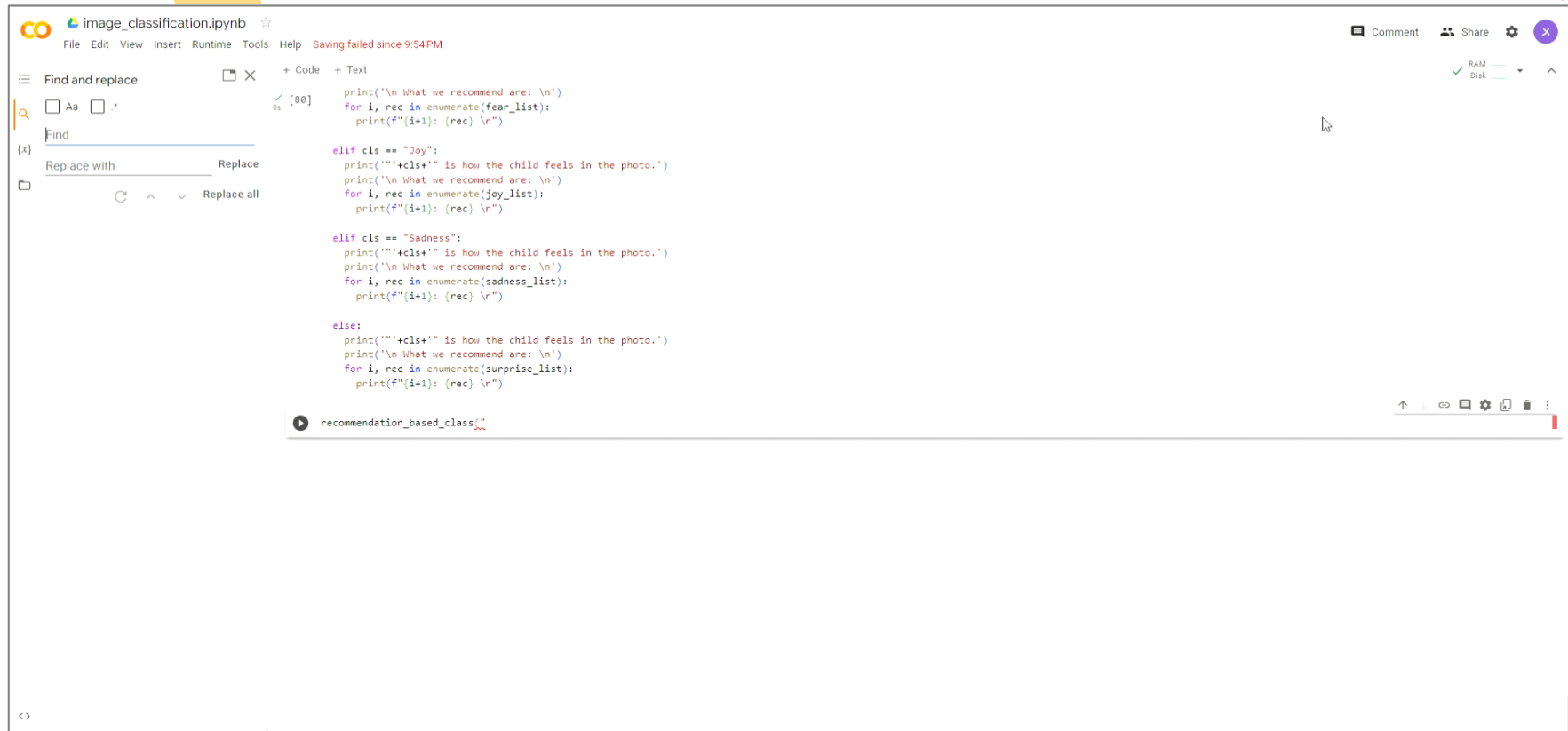# System Prediction Cycle
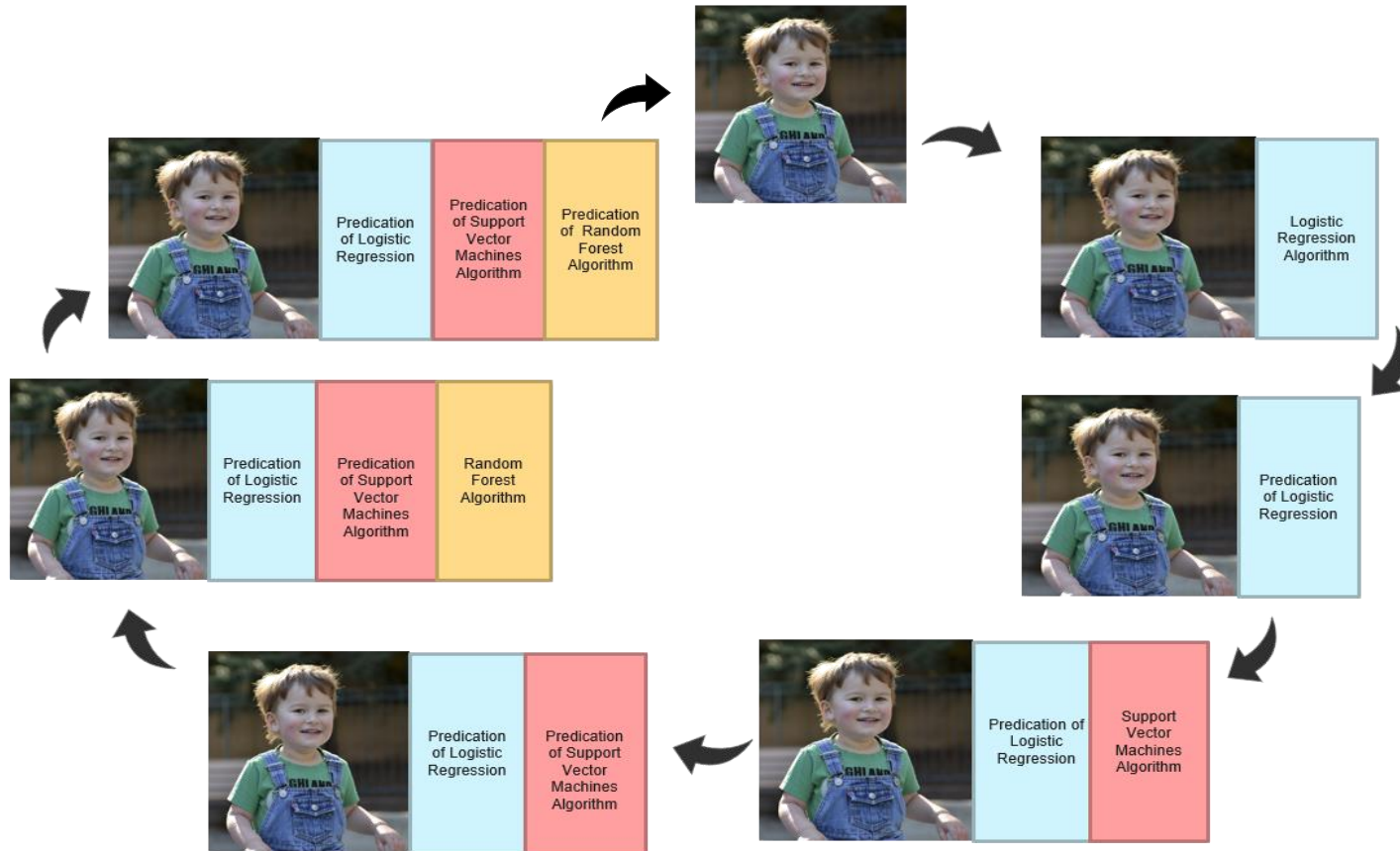
Model Performance Evaluation

```python
print(metrics.classification_report(predictions, y_test))
```

```
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        77
           1       1.00      0.75      0.86       103
           2       1.00      0.76      0.86       103
           3       0.96      0.87      0.91        86
           4       0.33      0.93      0.49        28
           5       0.83      0.94      0.88        68

    accuracy                           0.85       465
   macro avg       0.85      0.87      0.83       465
weighted avg       0.93      0.85      0.87       465
```

Model Prototype & Results
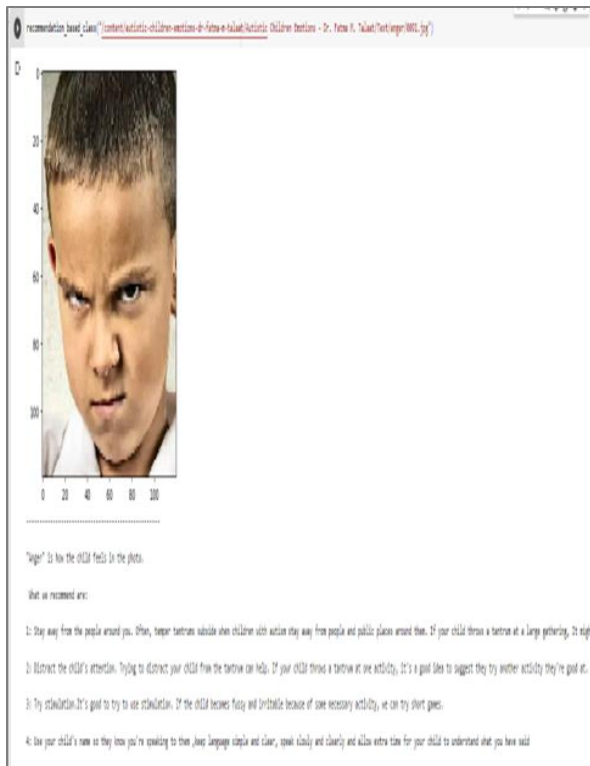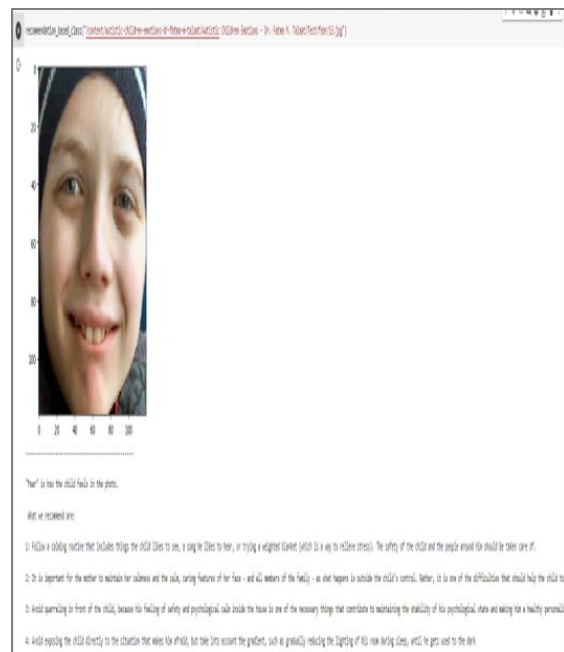
Model Prototype & Results

Natural Feelings
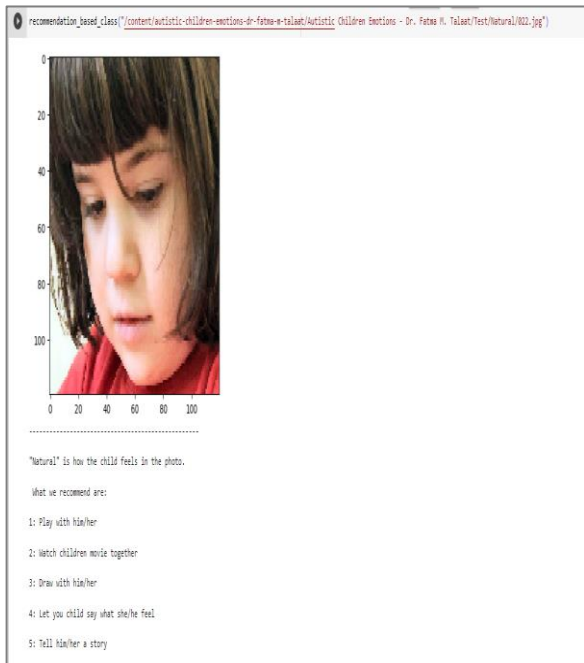
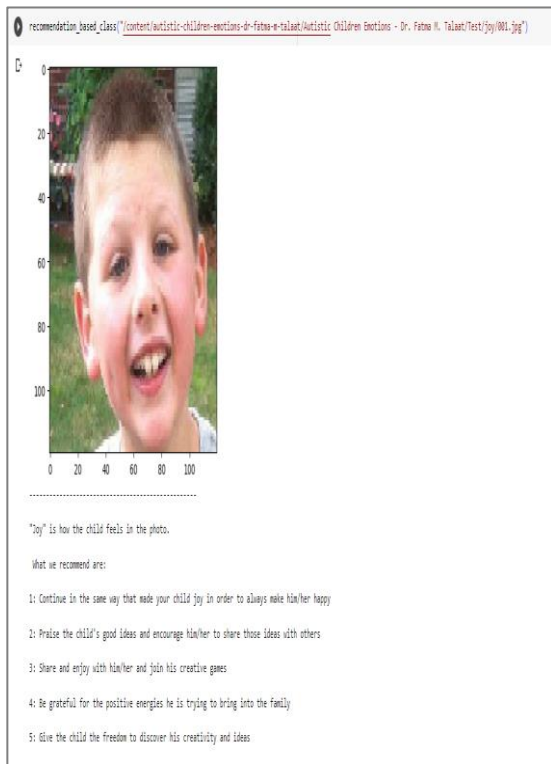## Anger Feelings

Fear Feelings
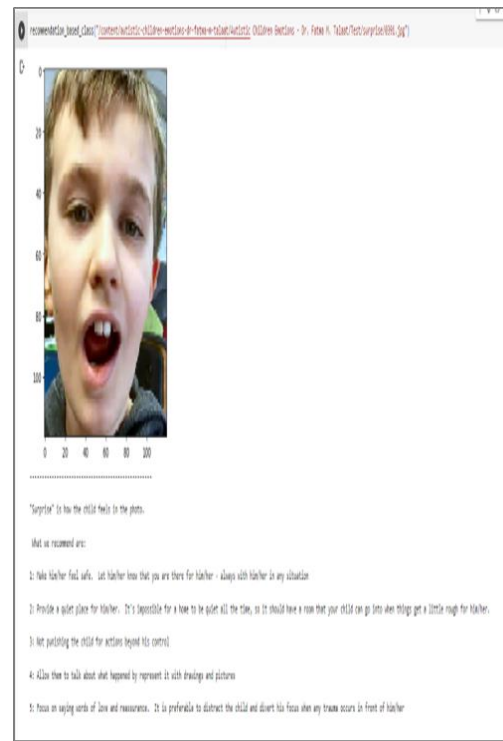
Model Prototype & Results

Joy Feelings

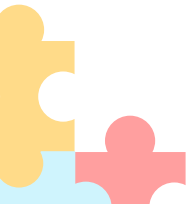**Sad Feelings**

Surprise Feelings

Conclusion

- Our system helps educators like parents, teachers, nurses, and doctors in handling autistic children by downloading their photos,

- It seeks to analyze the child's emotions,

- It gives recommendation to autistic child family, teachers and anyone how have interacted with them.
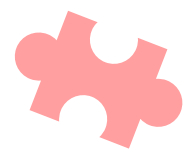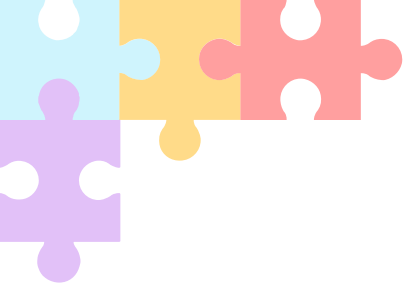
Future work

We plan:

1. Develop our system to be website then robot.

2. Share it in order to achieve a widespread on different search engines.

3. Provide 99% accurate sentiment analysis results of autistic children.

4. Understand and develop new other sentiments.

Thank you for Listening