ELECTRONICS ENGINEERING SOCIETY

UDYAM'25

MOSAIC

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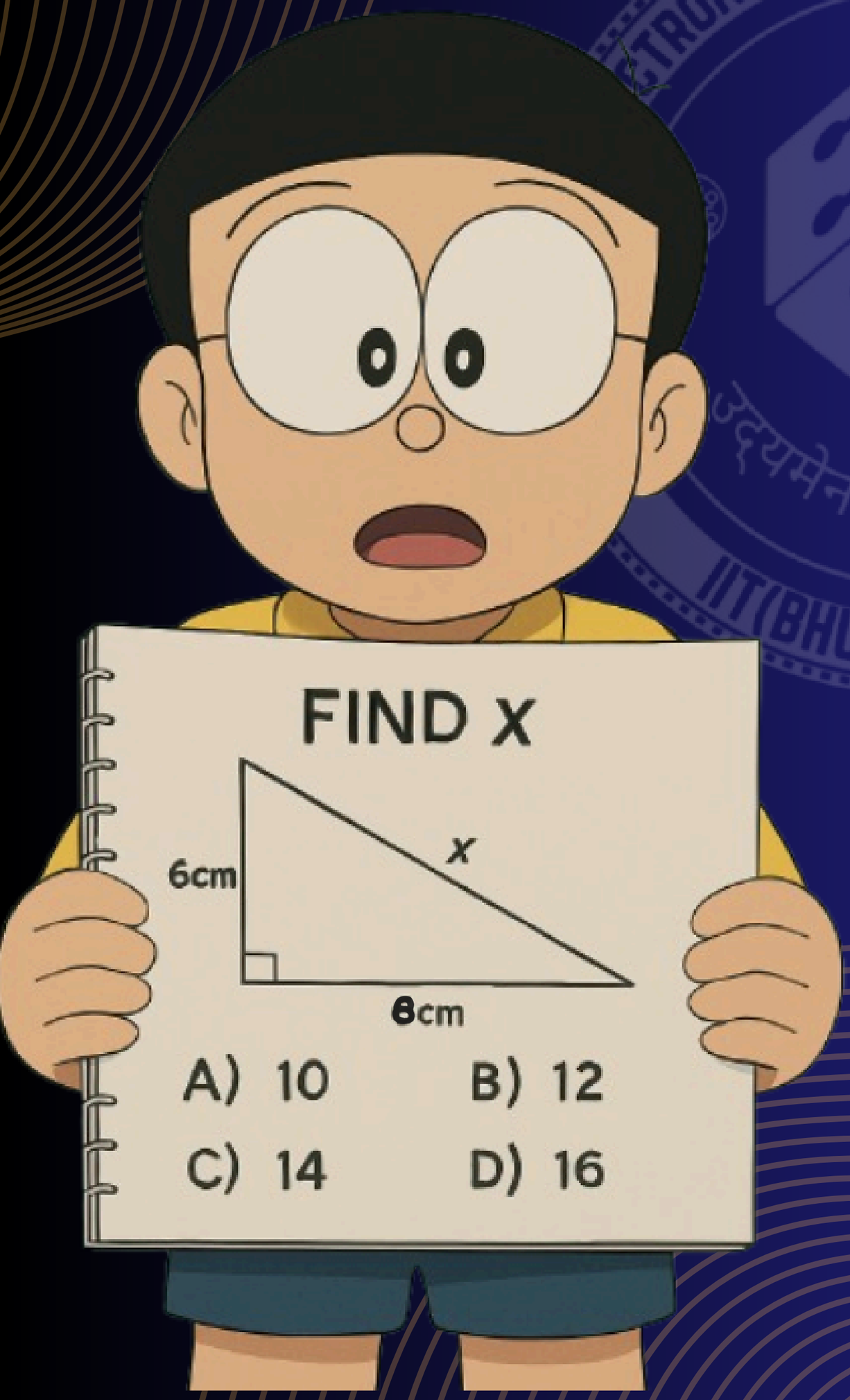
INTRODUCTION



Nobita Nobi, a high school student, was given a summer assignment filled with challenging geometry problems. However, instead of working on them, he spent his entire vacation playing games. Now, with just a week left before submission, he is in deep trouble!

With dozens of geometry questions still unsolved, Nobita needs an intelligent solution to finish his assignment on time. Your challenge is to build a deep learning model that can automatically interpret and solve these geometry problems.

You are provided with a dataset consisting of mathematical questions in image format along with multiple-choice answer options. Your model should be capable of analyzing the given images, understanding the problem, and predicting the correct answer. This challenge will test your ability to apply computer vision, deep learning, and natural language processing to solve real-world mathematical problem.

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Your Mission:

Your job is to Develop an AI-powered model that can:
Understand Geometry Problems – Extract relevant information from images containing mathematical questions.

Process Multiple-Choice Options – Analyze and predict the correct option out of given choices.

Achieve High Accuracy – Optimize the model for accurate and reliable predictions

Dataset:

Dataset link :
https://drive.google.com/file/d/1mliFnFssayCGtEKQgoRfJUdSGAqvzvcN/view?usp=sharing

The dataset consists of:
Geometry questions presented in the form of a combination of images and textual description.

Multiple-choice answer options for each question.

Labels indicating the correct answer for supervised learning and evaluation

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Rules and Guidelines

Participants may use pre-trained models for finetuning purpose

- Participants may use pre-trained models for finetuning purpose.
- Teams can have a maximum of 3 members.
- External datasets are not allowed beyond the provided dataset.
- Submissions must be made before the deadline; late submissions will not be considered. DEADLINE: 9th April EOD

Evaluation Criteria

Your model will be evaluated based on:

- Prediction Accuracy – How well the model selects the correct option.
- Generalization Ability – Performance across different question formats and unseen variations.
- Computational Efficiency – How effectively the model processes and solves problems within a reasonable time

Deliverables

Participants are expected to submit the following:

1. Codebase: A structured and well-documented repository (GitHub or any cloud storage) containing the implementation. A ipynb Notebook or script-based implementation will be accepted.
2. Report/Documentation: A detailed report explaining:
   - Model architecture and approach
   - Data preprocessing techniques
   - Training methodology and hyperparameter tuning
   - Performance metrics (e.g., accuracy, precision, recall)
   - Challenges faced and potential improvements

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