20 YEARS OF DEVELOPING YOUTH

MACHATHON 6.00

AI Competition

Contents

MACHATHON

About us

STP (Steps Towards Progress) is a prominent student activity that originated in 2006 at Cairo University as the first student-led initiative within the Faculty of Engineering. In 2018, STP expanded its reach to Ain Shams University, aiming to develop youth in various fields. The organization's vision is to be a leading entity working on developing youth who will lead positive changes. Their mission focuses on personal and technical development through academic programs, projects, and events, fostering a generation capable of contributing effectively to themselves, their community, and their country.

MACHATHON

History of Machathon

Machathon is one of STP's flagship events, first introduced in 2020 as Egypt's first machine learning competition for students, offering total prizes of 30,000 EGP. Over the years, Machathon has evolved to address different challenges in emerging technologies:

- **Machathon 1.0 (2020) :** Egypt's inaugural machine learning competition for students.
- **Machathon 2.0 (2021) :** Became the world's first Arabic NLP competition.
- **Machathon 3.0 (2022) :** Focused on smart cities and detecting the number of cars using computer vision .
- **Machathon 4.0 (2023):** Egypt's first self-driving car competition, gaining sponsorship from Tahaluf Al Emarat Technical Solutions
- **Machathon 5.0 (2024):** Focused on AI-based shoplifting detection systems.
- **Machathon 6.0 (2025):** .....

Problem Definition

In today's fast-paced medical environment, handwritten prescriptions often lead to errors, inefficiencies, and difficulties in managing patient medication schedules.

Machathon 6.0 seeks to revolutionize healthcare by introducing AI-driven models to accurately extract, interpret, and digitize prescription data, reducing misinterpretations and enhancing patient care.

This challenge requires participants to tackle handwriting recognition, language variations, and automated scheduling systems, ultimately improving prescription accessibility and usability.

MACHATHON

Target Audience

Machathon 6.0 is designed for individuals passionate about AI, Computer Vision, Natural Language Processing (NLP), and software development. It is ideal for:

- Developers and AI Researchers passionate about Natural Language Processing (NLP) and Machine Learning.
- Medical and Healthcare Professionals seeking automated solutions for prescription management.
- Innovators and Problem-Solvers eager to enhance digital healthcare systems.
- Students and Enthusiasts looking to gain hands-on experience in AI-driven medical technology.

Competition Phases

Team Formation :

- Each team must have **3 to 5** members.
- Individuals without teams must choose their strongest area of expertise to assist us in team formation and ensure balanced composition.
- Teams must cover all necessary skill sets for competition success.

Team Form Link :

Deadline: **11:59 PM | 11/2/2025**

Click Here to Full.

Proposal Submission :

Teams must submit a detailed proposal outlining their approach and planned solutions.

The proposal must include:

- Problem Definition
- Solution Architecture

The proposal link will be sent after team formation, with a deadline of **11:59 PM on 15/2/2025.**

Competition Phases

Model Testing Phases

Handwritten Extraction :

- Input: Prescription images in:
  - Fully Arabic
  - Fully English
  - Mixed (Arabic & English)
- Challenges:
  - Extracting text only from the handwritten portion of the prescription.
  - Handling mixed-script prescriptions.
  - Addressing misspellings and Extraction errors.
  - Ignoring redundant layout information such as doctor details, hospital headers, and printed text.
- Evaluation Criteria:
  - Word Error Rate (WER)
  - Character Error Rate (CER)
  - Model Efficiency: Ensuring lightweight,non-redundant models.

The **evaluation phase** will begin on **Feb 18** and last for **one week**.

Competition Phases

Model Testing Phases

Medicine & Appointment Extraction

- Goal: Extract medicine names and Appointmen instructions from prescriptions.
- Extract:
  - Medicine Names (in Arabic or English). considering possible misspellings).
  - Appointment Instructions (in Arabic or English).
- Challenges:
  - Mixed-language prescriptions.
  - Various appointment styles (e.g., "Before meals," "Every 8 hours," etc.).
- Evaluation Criteria:
  - F1 Score for name and appointment extraction.
  - Model Efficiency: Ensuring lightweight, non-redundant models.

The **evaluation phase** will begin on **Feb 25** and last for **12 days**.

Competition Phases

Model Testing Phases

Scheduling

- Goal: Ensure the model correctly understands appointment times and can accurately schedule them.
- Challenges:
  - Understanding various time expressions (e.g., "Every 8 hours," "Before meals," "Twice daily").
  - Handling different languages and mixed formats.
- Evaluation Criteria:
  - Accuracy in scheduling medication based on extracted prescription details.

The **evaluation phase** will start on **March 9** and continue for **a week**.

Competition Phases

Deployment & Finalization

- After **Eid**, teams will finalize and deploy their solutions.
- Teams must design a **poster** showcasing their innovation.
- **Creativity** and **presentation** quality will be part of the final evaluation .
- The chosen teams from the last phase can enhance model quality and Recieve feedbacks.
- **Machathon 6.0** Final Event Date: **18/4.**

Rules & Regulations

- Teams **must** build their own custom models or fine-tune open-source solutions .
- **APIs** for extracting or recognizing handwriting are **not permitted**.
- Each team gets **one** submission **per day**; leaderboard updates occur within **24 hours**.
- If a new submission scores lower, the leaderboard retains the previous best score.
- Teams must ensure models are lightweight and efficient to avoid performance penalties.

Technical Support&Inquiries

- Throughout the competition, the Technical Support Team will be available to assist participants with any questions or difficulties they encounter.
- The team will provide guidance on:
  - Competition rules and submission guidelines.
  - Model evaluation and expected outcomes.
  - Addressing technical challenges during development.
  - Ensuring fairness and compliance with the regulations.
- For any inquiries, participants can reach out to the Technical Support Team , who will be actively monitoring and assisting teams during all phases of the Machathon.

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