# Artificial Intelligence Tasks & Instructions — CodeAlpha

## 🤖 Artificial Intelligence — Internship Overview

This internship program offers real-world experience in **Artificial Intelligence**. CodeAlpha is a leading software development company dedicated to driving innovation and excellence across emerging technologies. The AI internship provides students with hands-on experience in AI model development, machine learning workflows, and real-time data processing. Interns will work in a dynamic environment, receive expert mentorship and contribute to projects that reflect the latest advancements in artificial intelligence.

## 🎁 Internship Perks

- Internship Offer Letter
- Completion Certificate (QR Verified)
- Unique ID Certificate
- Letter of Recommendation (based on performance)
- Job Opportunities / Placement Support
- Resume Building Support

## 📌 Instructions for Interns

1. Share your internship status on **LinkedIn**, tagging **@CodeAlpha**.
2. Complete the **assigned projects** within the mentioned time frame.
3. Upload your complete source code to **GitHub** in a repository named:
   `CodeAlpha_ProjectName`
4. Post a **video explanation** of your project on LinkedIn with GitHub repo link.
5. Submit your completed task using the **Submission Form**.
6. **Complete any 3 or 2 out of the 4 tasks** listed below (from your domain).

## 📱 Artificial Intelligence Task List

*(Complete any 2 or 3 of the following tasks)*

### ✅ TASK 1: Language Translation Tool

- **Create a user interface** where user can enter text and select source & target languages.
- **Use a translation API** like Google Translate API or Microsoft Translator to process the input.
- **Send the text** to the API and get the translated response.
- **Display the translated text** clearly on the screen.
- **Optional:** Add a copy button or text-to-speech feature for better usability.

## ✅ TASK 2: Chatbot for FAQs

- **Collect FAQs** related to a topic or product (questions and their answers).
- **Preprocess the text** using NLP libraries like NLTK or SpaCy (tokenize, clean, etc.).
- **Match user questions** with the most similar FAQ using techniques like cosine similarity or intent matching.
- **Display the best matching answer** as a chatbot response.
- **Optional:** Create a simple chat UI for user interaction.

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## ✅ TASK 3: Music Generation with AI

- **Collect MIDI music data** to train your AI model (classical, jazz etc.).
- **Preprocess the data** into note sequences suitable for training (e.g., using `music21`).
- **Build a deep learning model** using RNNs (like LSTM) or GANs to learn music patterns.
- **Train the model** on the dataset to generate new music sequences.
- **Convert generated sequences to MIDI** and play or save them as audio.

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## ✅ TASK 4: Object Detection and Tracking

- **Set up real-time video input** using a webcam or video file (OpenCV).
- **Use a pre-trained model** like YOLO or Faster R-CNN for object detection.
- **Process each video frame** to detect objects and draw bounding boxes.
- **Apply object tracking** using algorithms like SORT or Deep SORT.
- **Display the output** with labels and tracking IDs in real time.

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## 🚨 Important Note

**Internship Completion Criteria:**
To be eligible for the internship certificate, participants must complete a minimum of **two or three tasks**.
Submitting only one task will be considered **incomplete** and certificates will **not** be issued in such cases.

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## 📤 Submission Details

A submission form will be shared in your respective **WhatsApp group**. You are required to submit your completed task only through that form. Please follow the instructions mentioned in the form carefully to ensure your submission is accepted.

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## 📞 Contact Information

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