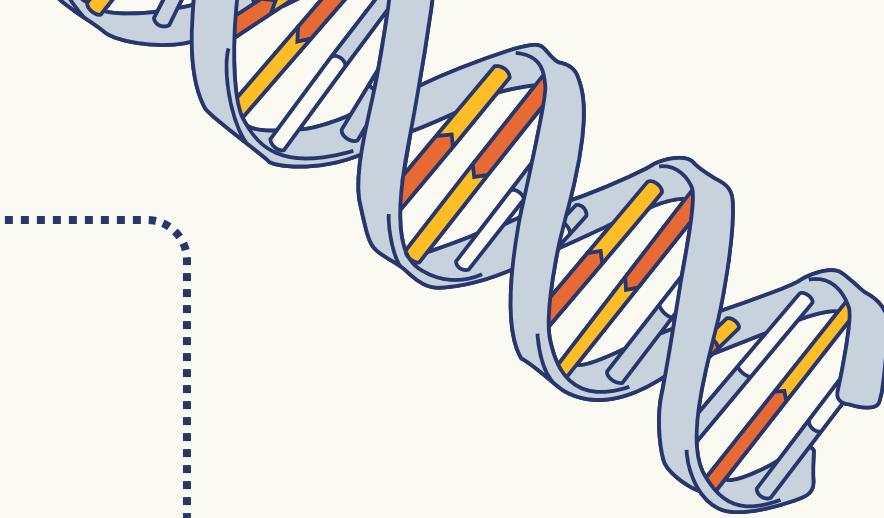




SPOT A BUG!

Kelompok 4



INTRODUCTION

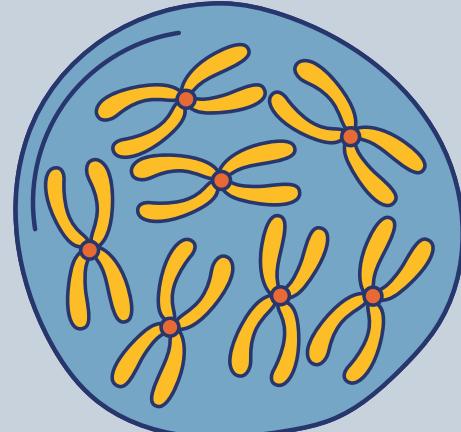
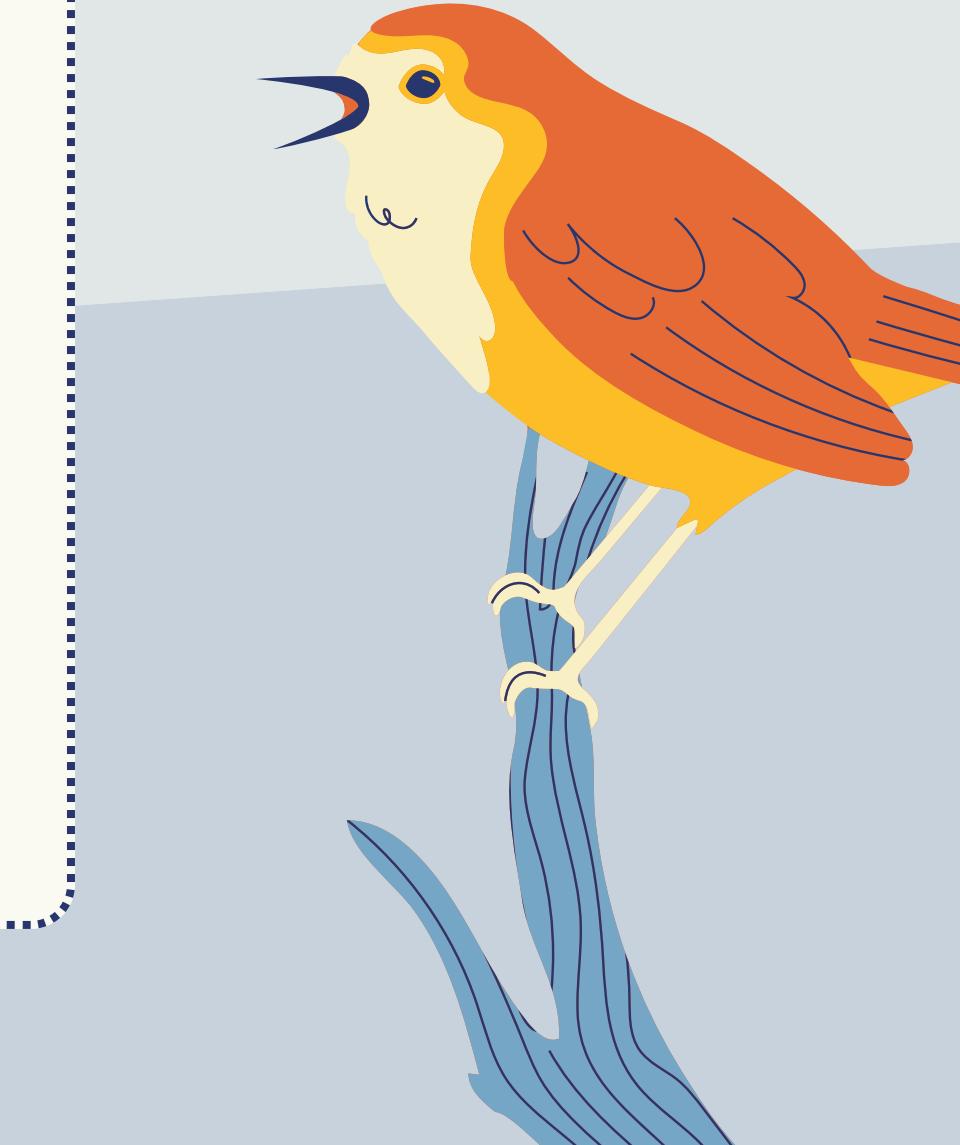


Ever wondered what insect you're looking at?

Spot A Bug is an AI-powered app that lets you identify insects just by taking a picture.

- 📷 Snap a Photo
- 🔍 Get Instant Identification
- ⚠️ Know if It's Dangerous or Beneficial
- 🌿 Learn Its Role in Nature

Whether you're a student, researcher, or just curious —
Spot A Bug makes insect identification simple, fast,
and fun!



WHY WE FINALLY DECIDED TO BUILD THIS?



01

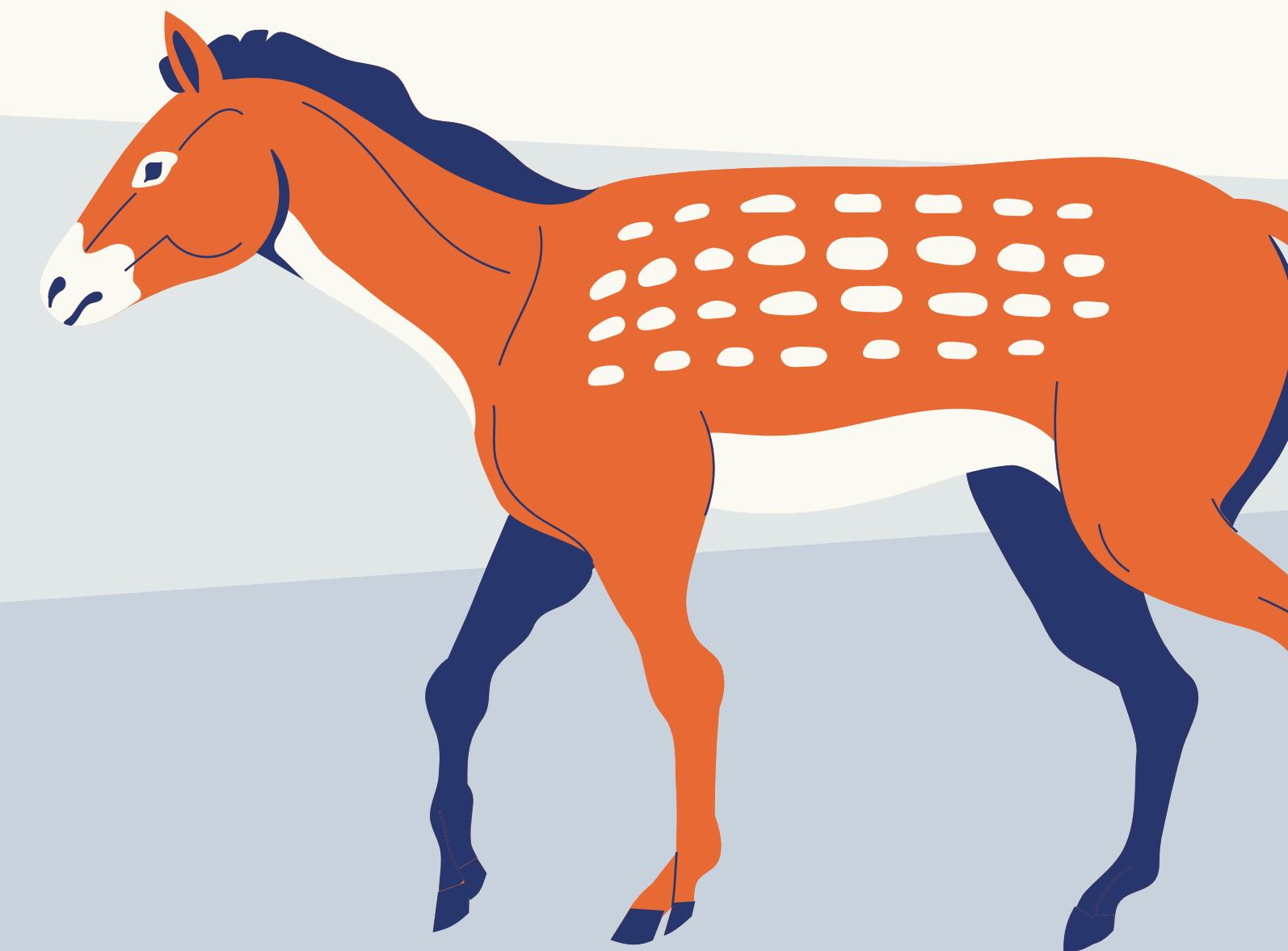
Education

02

Curiosity & Hobbies

03

Safety



RELATED WORKS

Here are some apps that are similar to ours



The image contains two screenshots of mobile applications for insect identification:

Left Screenshot (Google Lens): A screenshot of the Google Lens app interface. It shows a colorful butterfly resting on a green leaf. Below the image, there is a search bar with the text "Ask about this image" and a microphone icon. Below the search bar, there are tabs for "All", "Products", "Visual matches", and "About this image". Under "Related searches", there are cards for "Queen Alexandra's..." (pixers.hk) and "Paradise birdwing" (PIXERS.HK). The status bar at the top shows the time as 21:02 and battery level at 31%.

Right Screenshot (Picture Insect: Bug Identifier): A screenshot of the Picture Insect: Bug Identifier app. It shows a close-up of a green leaf with red veins. Overlaid on the image are several text labels: "Restore", "Masters of Disguise", and "Phyllium westwoodii". Below the image, there is a "Featured 10M Downloads" badge. A section titled "Design Your Trial" lists four benefits with checkmarks: "Enjoy your first 7 days, it's free", "Cancel from the app or your Google Play account", "Protect your home from hazardous insects", and "Easily identify 4000+ species of insects". There are three trial options: "Free 7 days" (selected), "1 month IDR31103.04", and "Remind me before the free trial ends". A large blue button at the bottom right says "Try for Free". The status bar at the top shows the time as 21:14 and battery level at 29%.

Labels below the screenshots:

Google Lens

Picture Insect: Bug Identifier

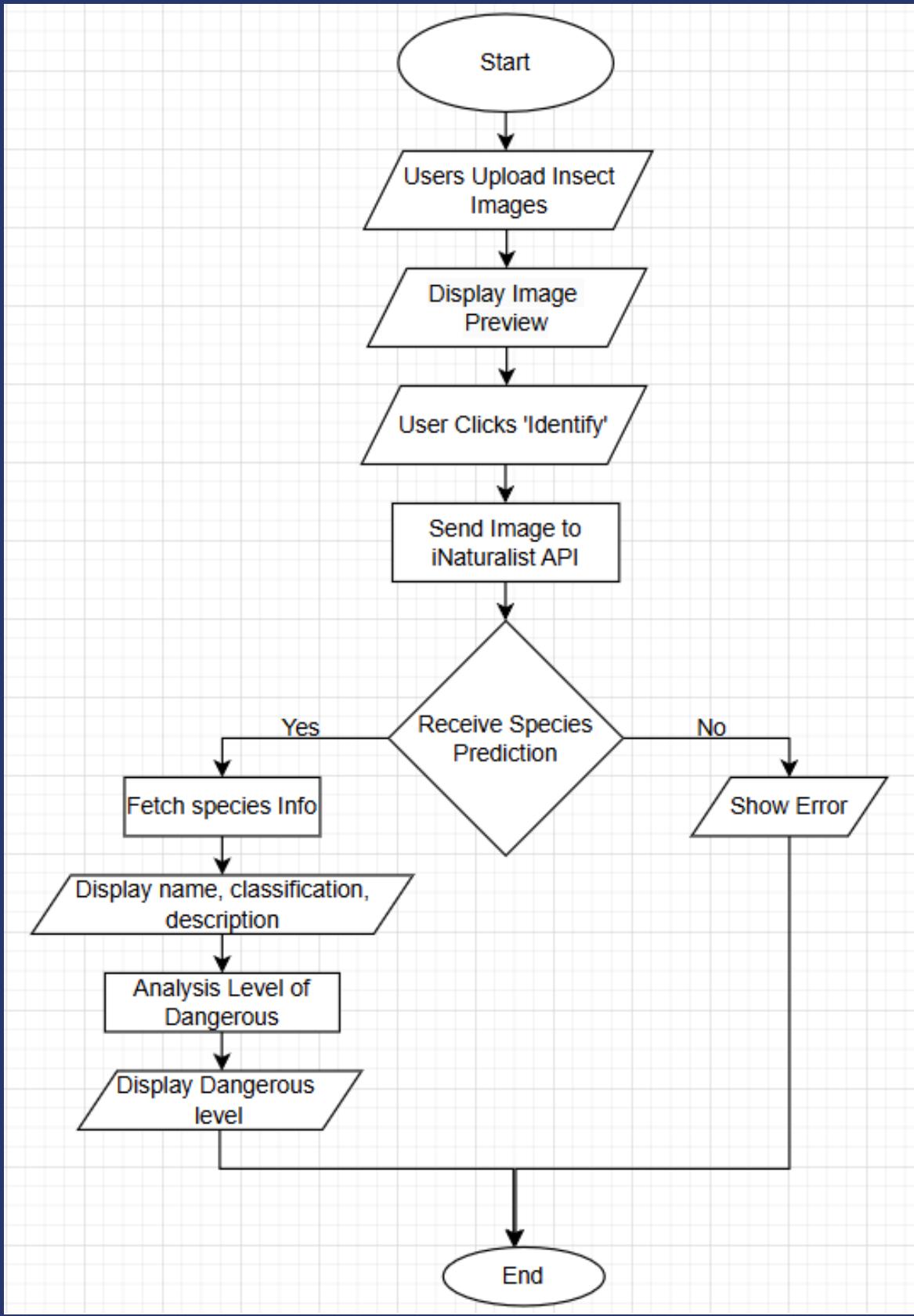
METHODOLOGY

Tools that we used:

- Frontend : XAML
- Backend : C#
- External APIs:
 - iNaturalist Computer Vision & Taxa API
 - Wikipedia REST API



Flowchart:



```
private const string ApiToken = "eyJhbGciOiJIUzUxMiJ9.eyJlc2VyX2lkIjo5MDA20TA2LCJleHAiOjE3NDg4NzM5Mjh9.e8";  
0 references  
public MainWindow()  
{  
    InitializeComponent();  
  
    client = new HttpClient();  
    client.DefaultRequestHeaders.Authorization = new AuthenticationHeaderValue("Bearer", ApiToken);  
    client.Timeout = TimeSpan.FromSeconds(30);  
}  
  
private async Task<string> IdentifyWithAPI(string imagePath)  
{  
    try  
    {  
        var url = "https://api.inaturalist.org/v1/computervision/score_image";  
  
        using (var content = new MultipartFormDataContent())  
        using (var imageStream = File.OpenRead(imagePath))  
        {  
            var imageContent = new StreamContent(imageStream);  
            string contentType = "image/jpeg";  
            string extension = Path.GetExtension(imagePath).ToLower();  
            if (extension == ".png")  
            {  
                contentType = "image/png";  
            }  
            imageContent.Headers.ContentType = MediaTypeHeaderValue.Parse(contentType);  
            content.Add(imageContent, "image", Path.GetFileName(imagePath));  
  
            HttpResponseMessage response = await client.PostAsync(url, content);  
            response.EnsureSuccessStatusCode();  
            string responseBody = await response.Content.ReadAsStringAsync();  
  
            var json = JObject.Parse(responseBody);  
            var firstResult = json["results"]?.FirstOrDefault();  
  
            return firstResult?["taxon"]?["name"]?.ToString();  
        }  
    catch (Exception ex)  
    {  
        MessageBox.Show($"API Error (Identification): {ex.Message}", "Identification Failed", MessageBoxButton.OK, MessageBoxImage.Error);  
        return string.Empty;  
    }  
}
```

RESULT



Insect Identifier

Spot a Bug!

No result yet.

Human Danger Assessment:
Awaiting identification...

Upload Image Identify

Insect Identifier

Spot a Bug!



Upload Image Identify

Scientific Name: *Calopteryx xanthostoma*
Common Name: Western Demoiselle
Classification: species

Description:
The western demoiselle or yellow-tailed demoiselle is a species of damselfly belonging to the family Calopterygidae. It replaces the banded demoiselle in southern France and the Iberian Peninsula, and is sometimes considered a subspecies of that species.

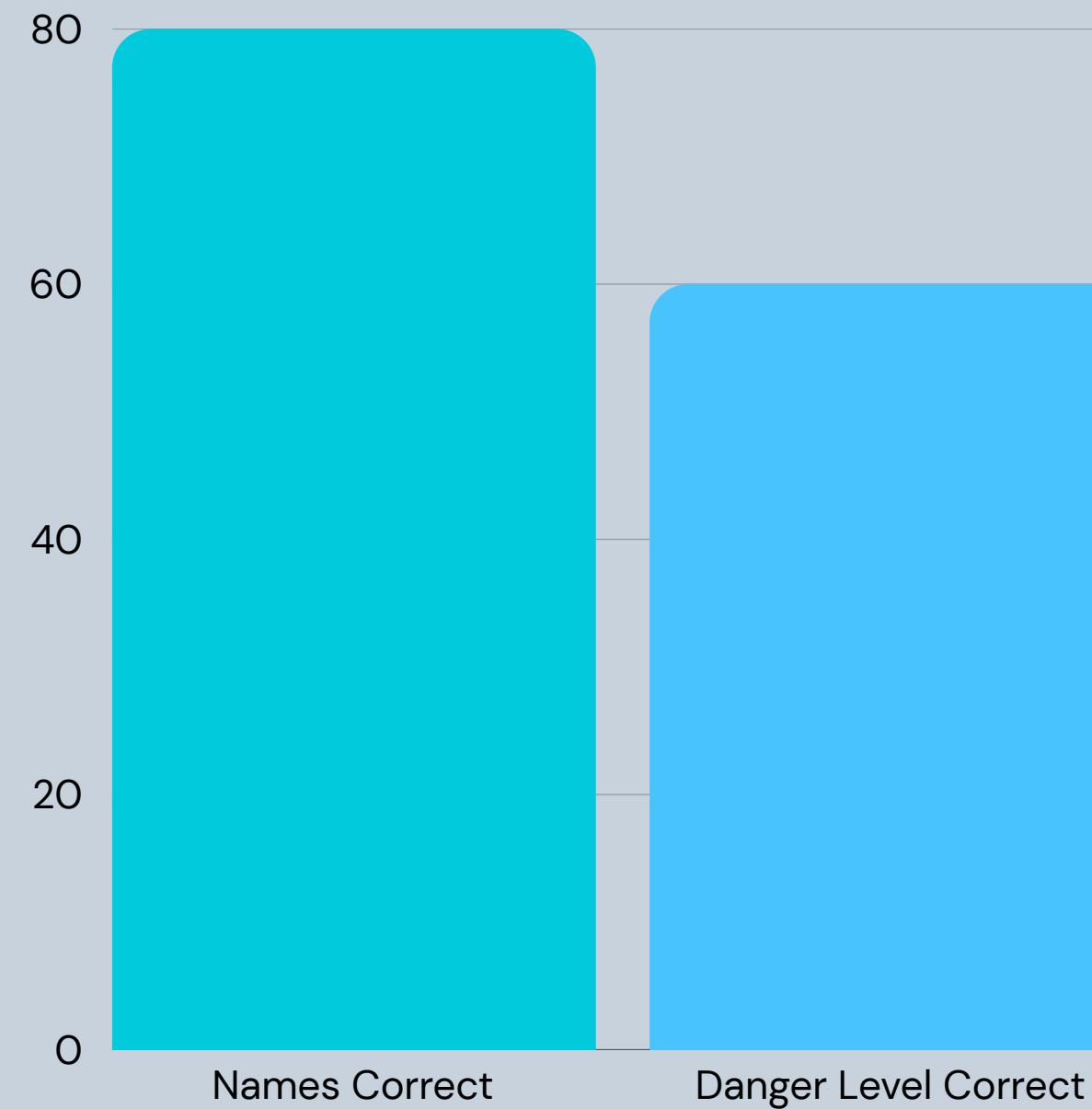
Human Danger Assessment:
Danger Level: Not specifically identified as dangerous.
Based on the available description, this insect is not explicitly mentioned as dangerous to humans. However, always avoid direct contact with unknown insects.

Trial From 10 Dataset

Percentage Names Correct : 80%

Percentage Danger Level Correct : 60%

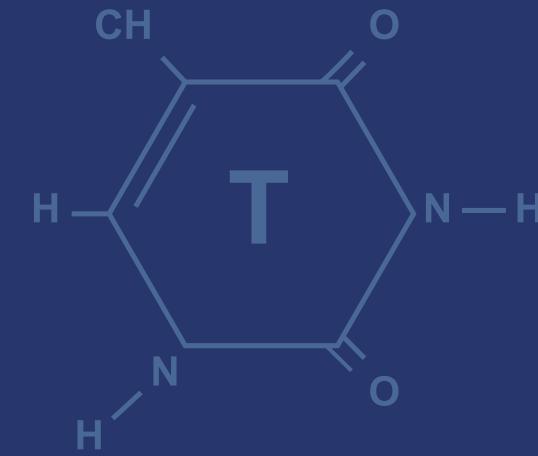
Names Correct Danger Level Correct



From a sample of 10 datasets, the model correctly identified names with 80% accuracy and danger levels with 60% accuracy. Due to the very small sample size, these results are not yet reliable and there is a potential risk of overfitting, meaning the model might be memorizing this limited data. To get more valid results, testing on a larger and more diverse dataset is needed to ensure the model's performance is stable and generalizable.

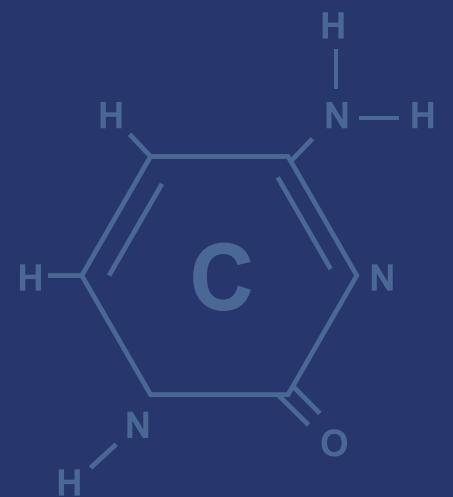
CONCLUSION

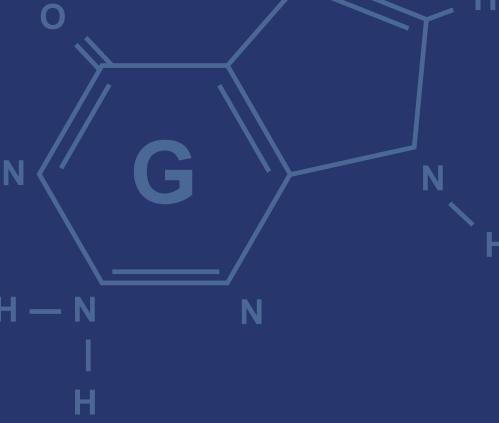
This insect identification app was created to provide accessible education, satisfy curiosity, and ensure safety. Unlike other apps, it offers precise identification, a detailed safety assessment, and free features. By identifying insects and evaluating danger levels, it serves as a valuable and user-friendly tool for both enthusiasts and the general public.



DISCUSSION

DO YOU HAVE ANY QUESTIONS?





THANK YOU !

"My brain is 90% song lyrics and 10% useful information. Hopefully, this presentation was in the 10%."

