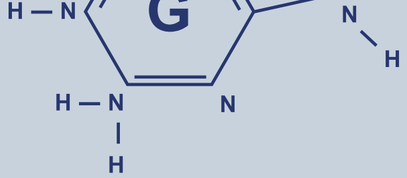
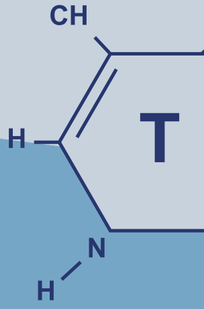
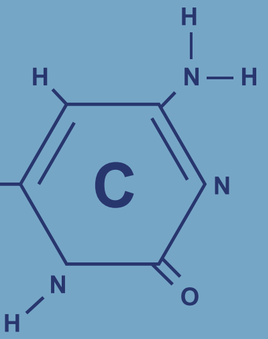
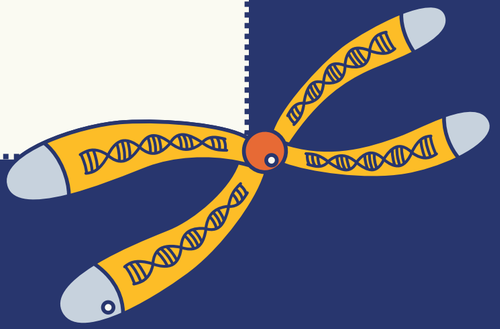


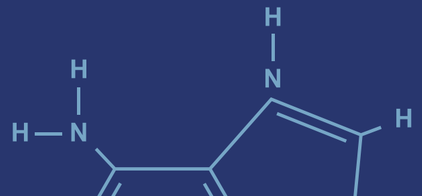


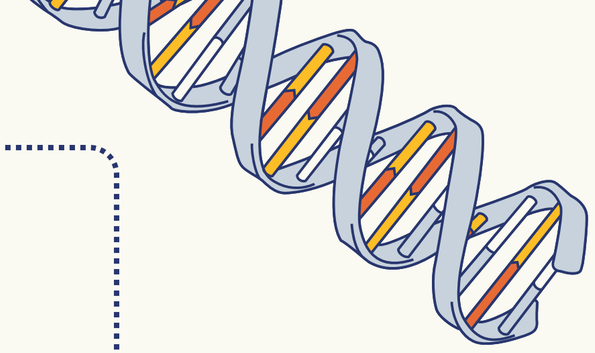


SPOT A BUG!

Kelompok 4





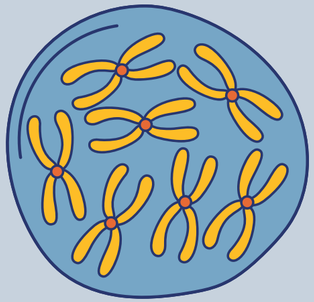


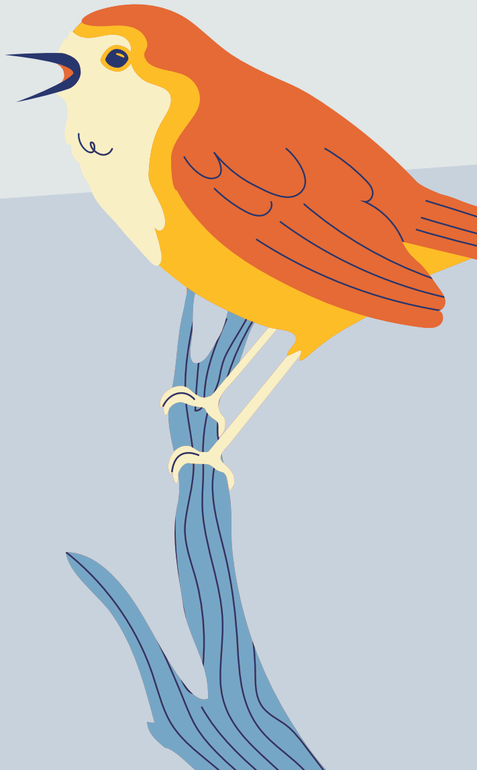
INTRODUCTION

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!



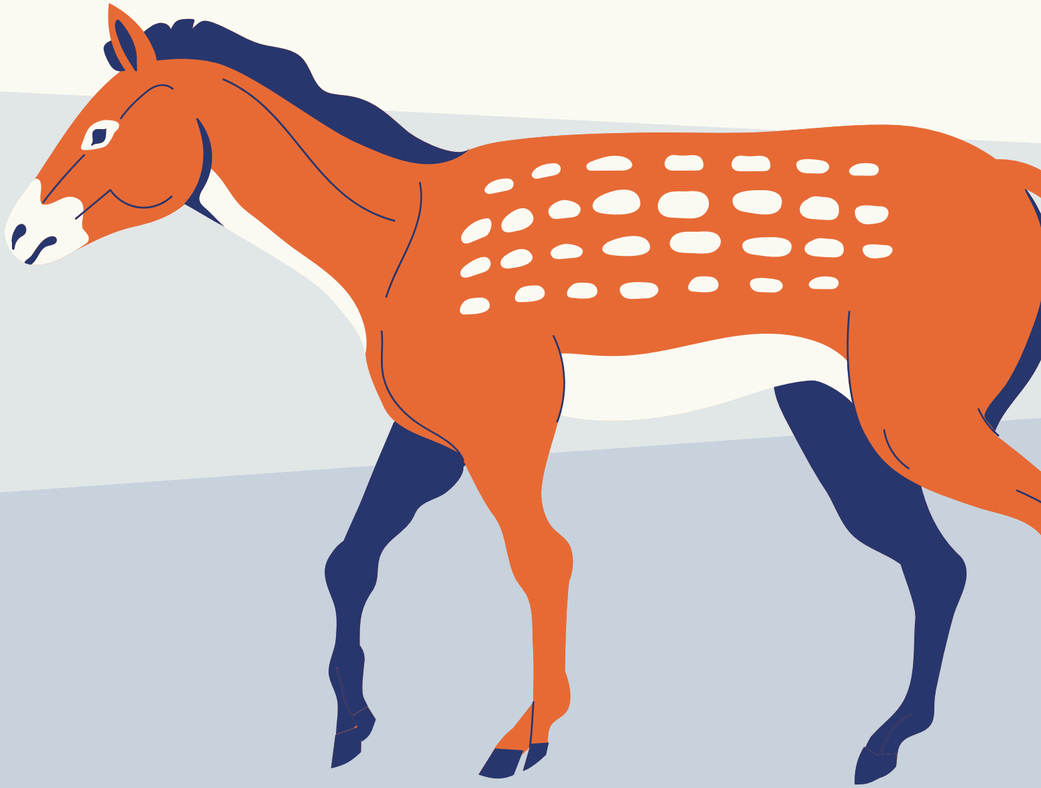


WHY WE FINALLY DECIDED TO BUILD THIS?

01 Education

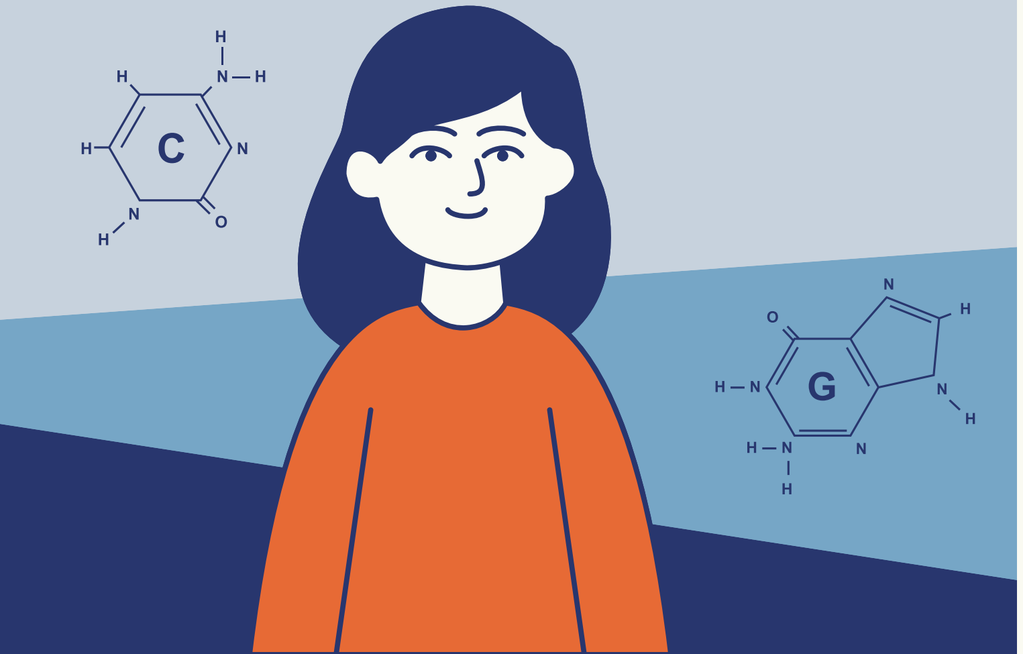
02 Curiosity & Hobbies

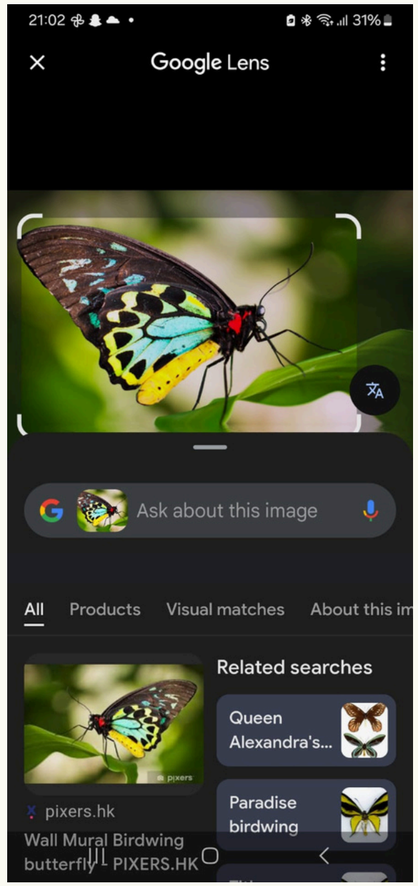
03 Safety



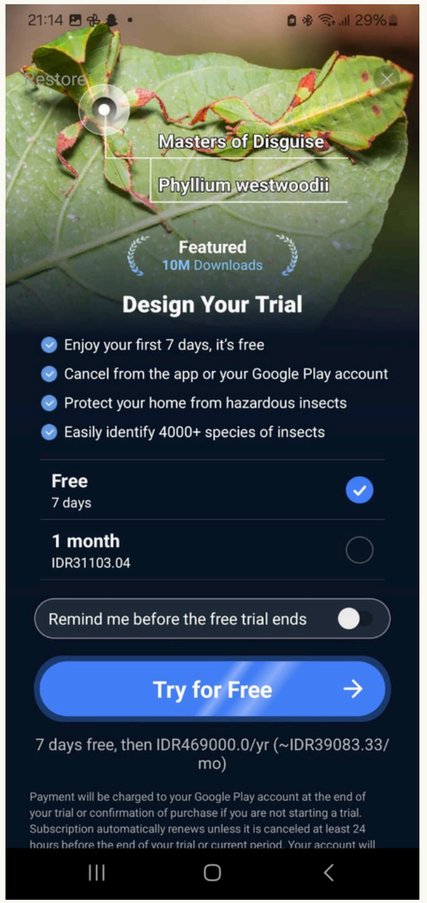
RELATED WORKS

Here are some apps that are similar to ours





Google Lens



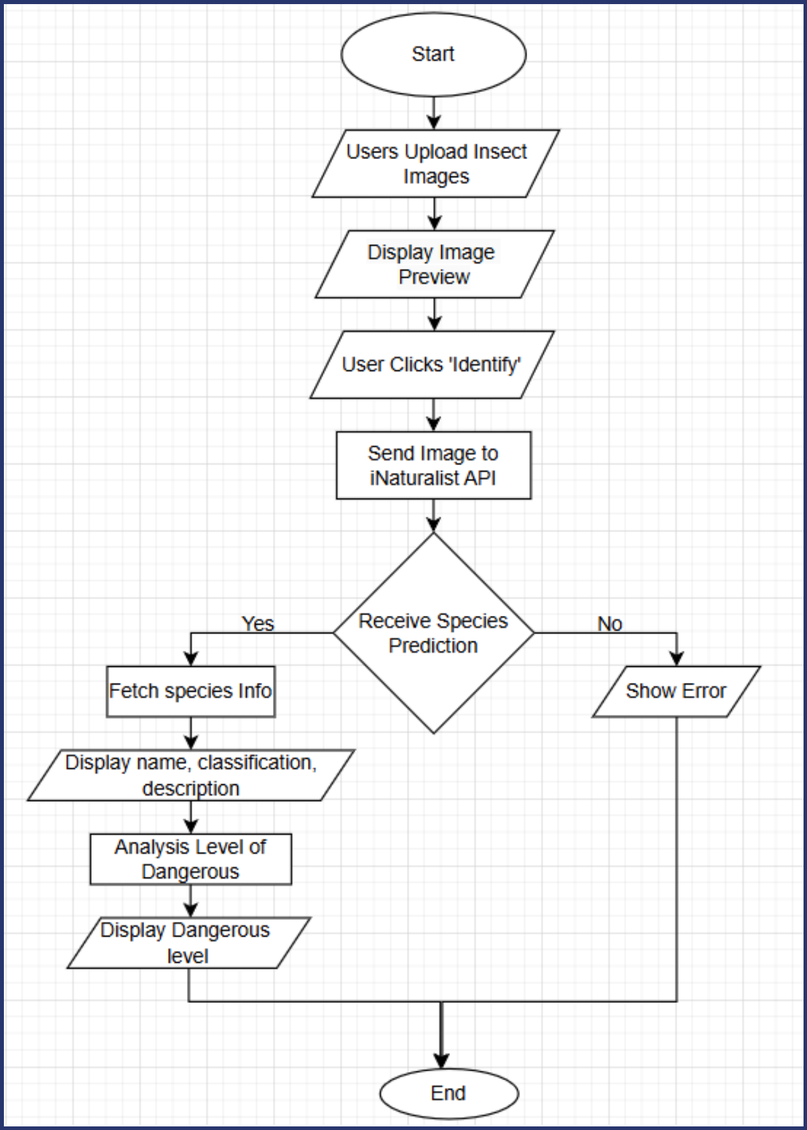
Picture Insect:Bug Identifier

METHODOLOGY

Tools that we used:

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

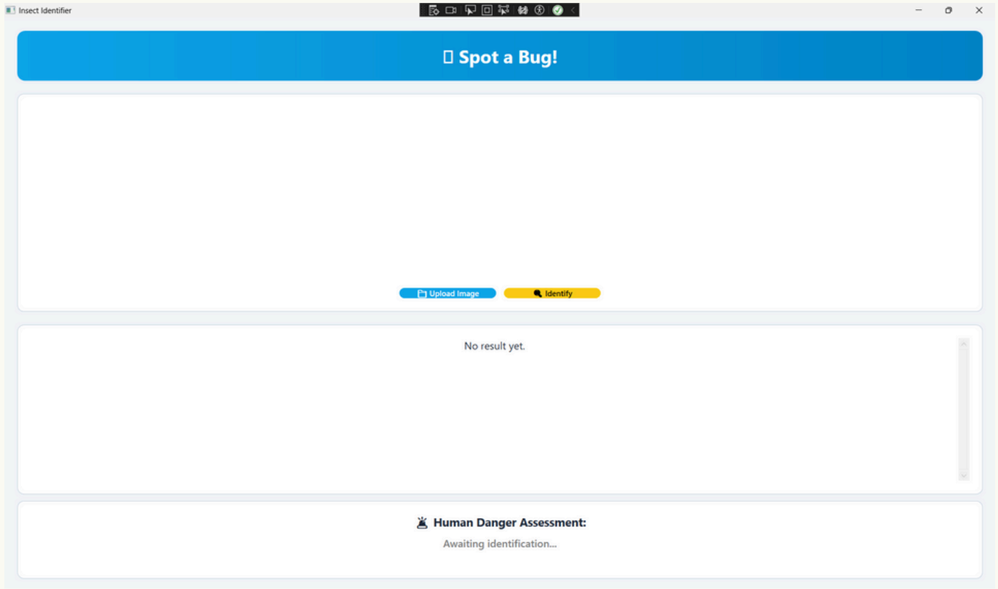
Flowchart:

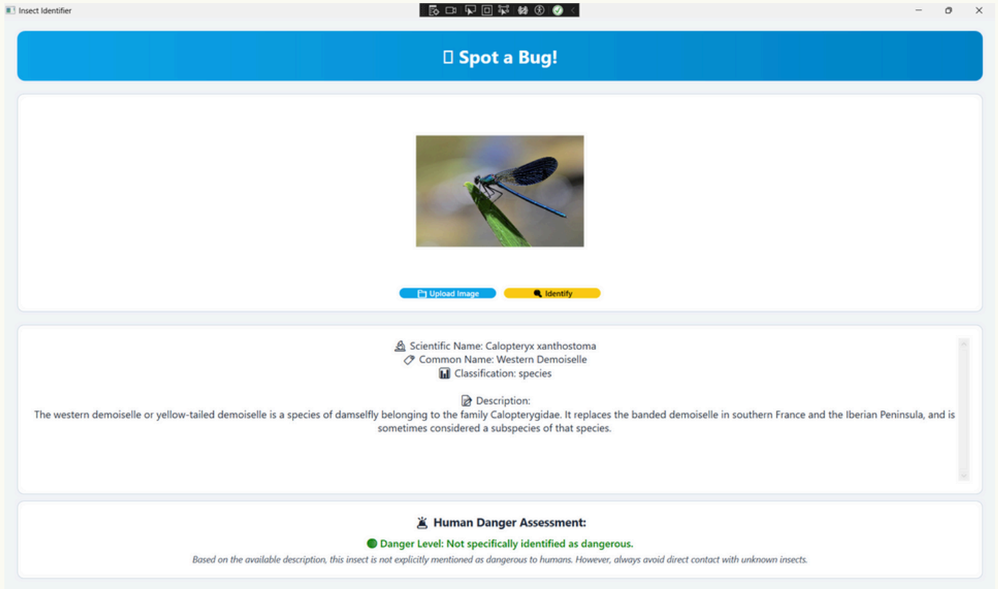



```
private const string ApiToken = "eyJhbGciOiJIUzUxMiJ9.eyJ1c2VyX2lkIjo5MDA2OTA2LCJleHAiOjE3NDg4NzM5Mjh9.e8

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;
    }
}
```

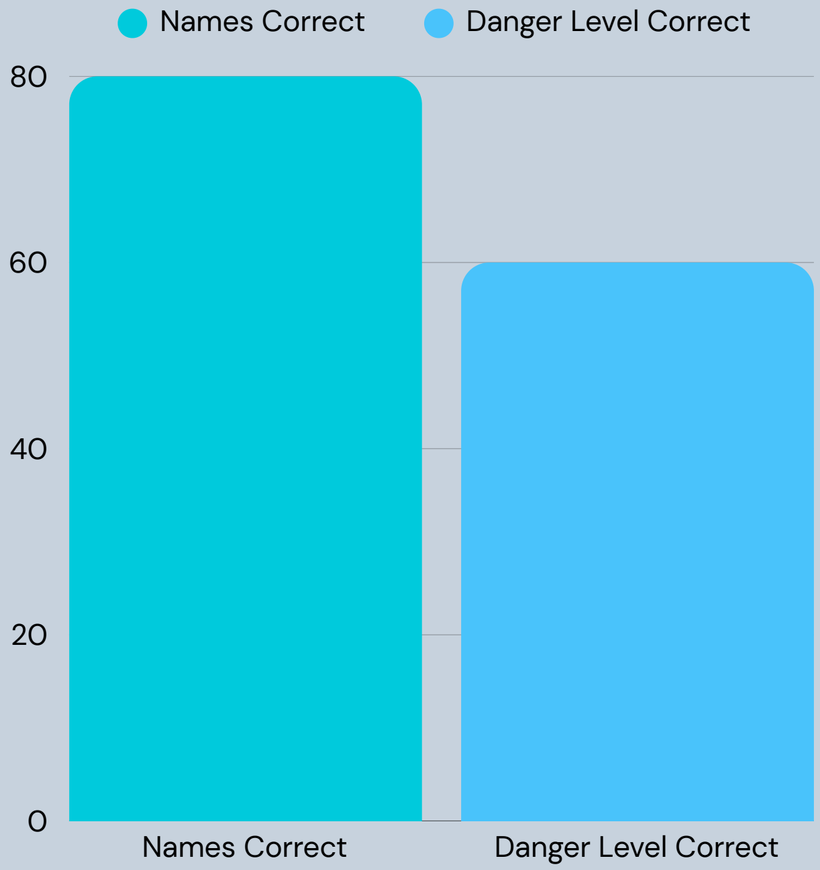
RESULT


Insect Identifier
 Spot a Bug!
Upload Image
Identify
No result yet.
Human Danger Assessment:
Awaiting identification...


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

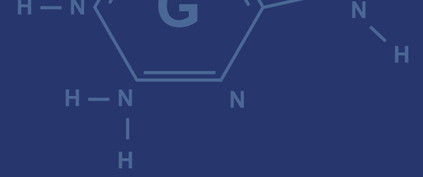
Percantage Names Correct : 80%
Percantage Danger Level Correct : 60%

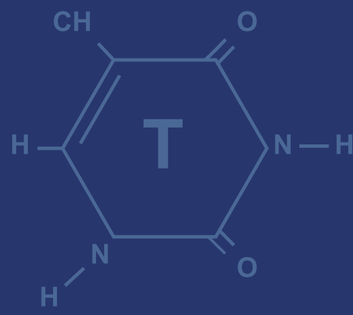


From a sample of 10 datasets, the model correctly identified names with 80% accuracy and danger levels with 60% accuracy. Due to the very small sample size, these results are not yet reliable and there is a potential risk of overfitting, meaning the model might be memorizing this limited data. To get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

CONCLUSION

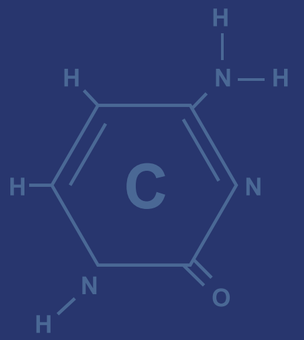
This insect identification app was created to provide accessible education, satisfy curiosity, and ensure safety. Unlike other apps, it offers precise identification, a detailed safety assessment, and free features. By identifying insects and evaluating danger levels, it serves as a valuable and user-friendly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