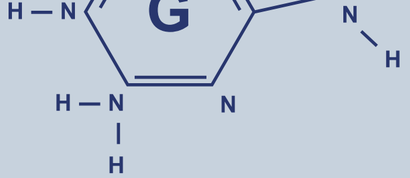
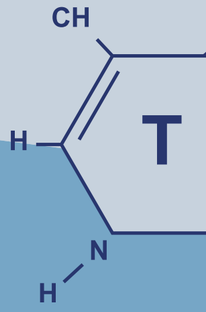
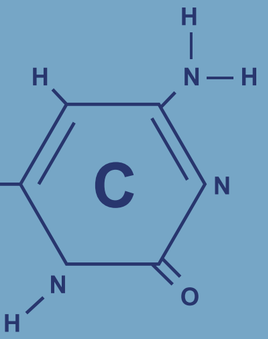
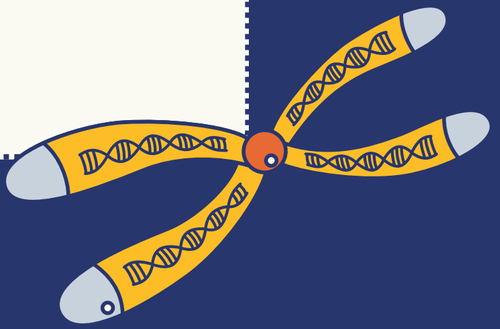


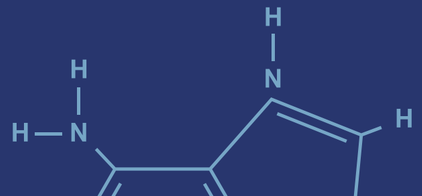



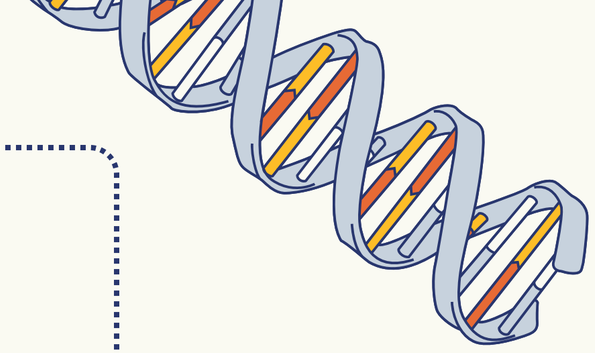




# SPOT A BUG!

Kelompok 4





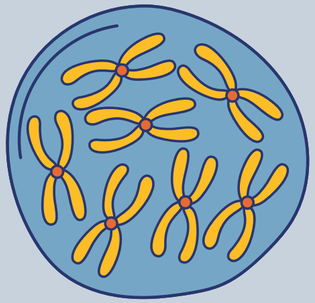


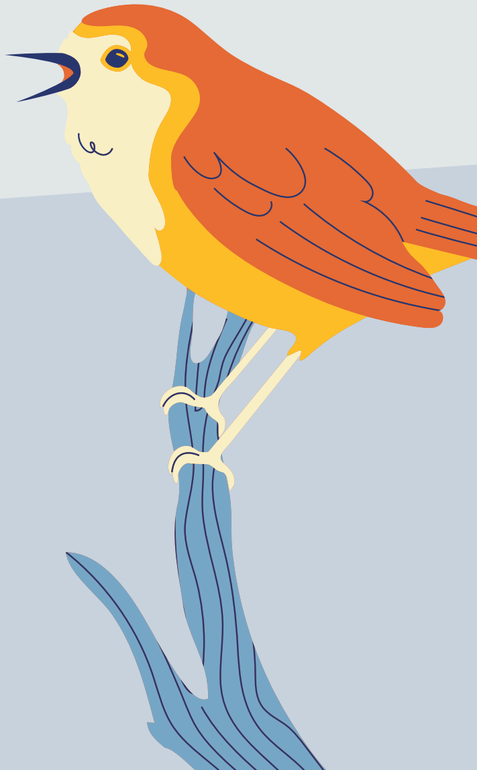
# INTRODUCTION

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!



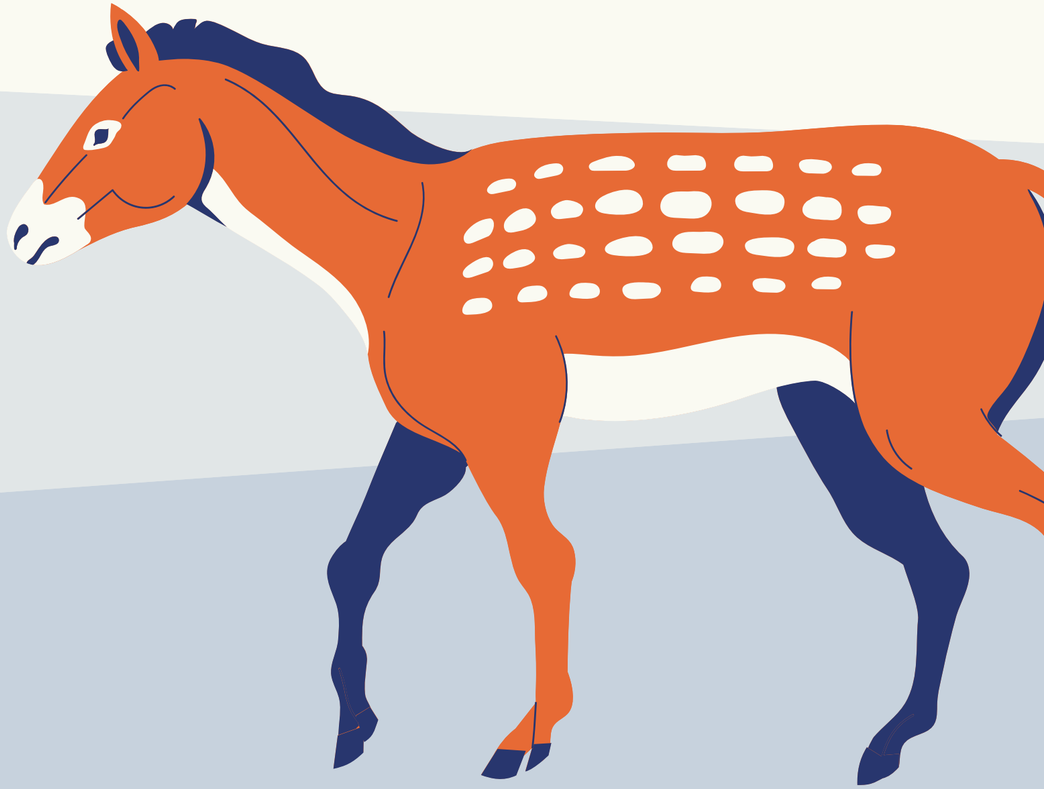


# WHY WE FINALLY DECIDED TO BUILD THIS?

01 Education

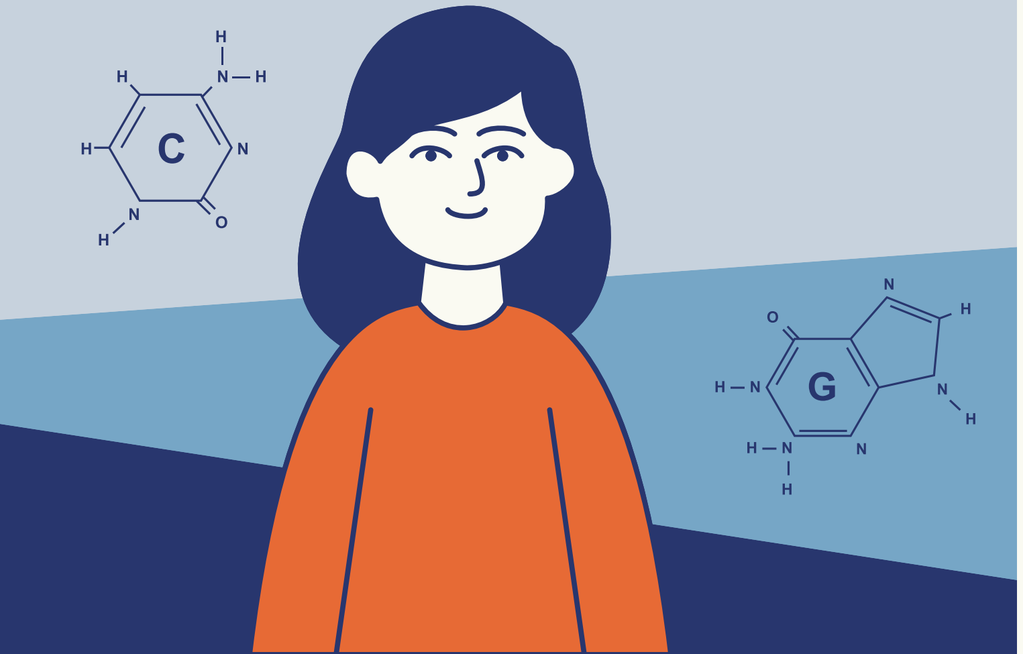
02 Curiosity & Hobbies

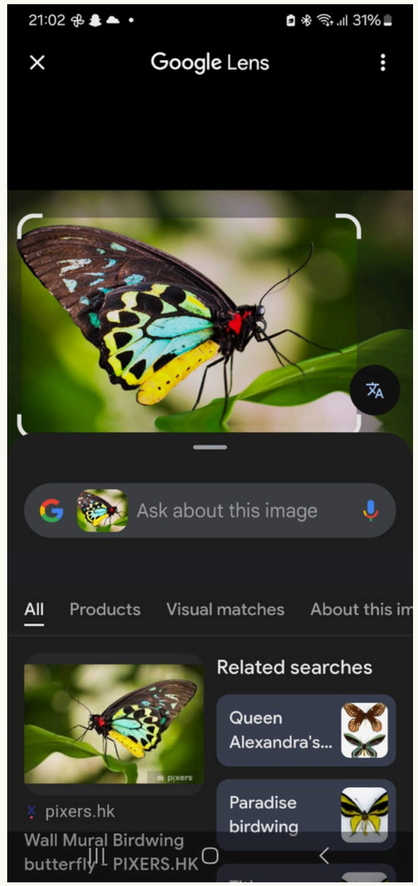
03 Safety



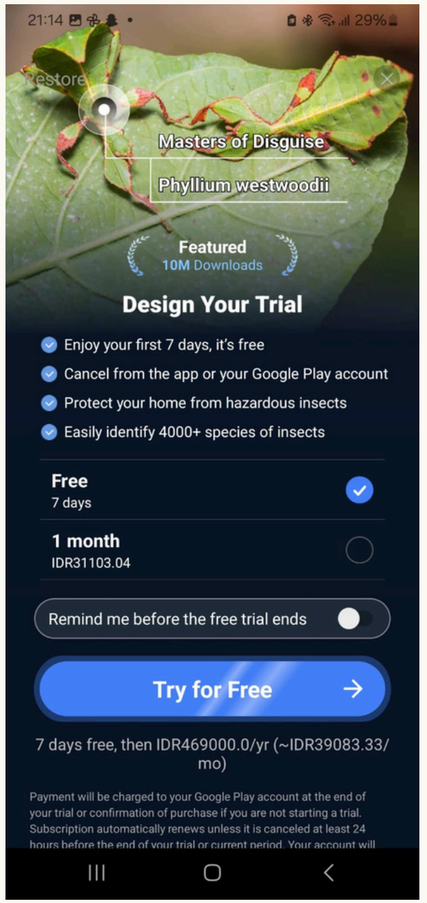
# RELATED WORKS

Here are some apps that are similar to ours






## Google Lens



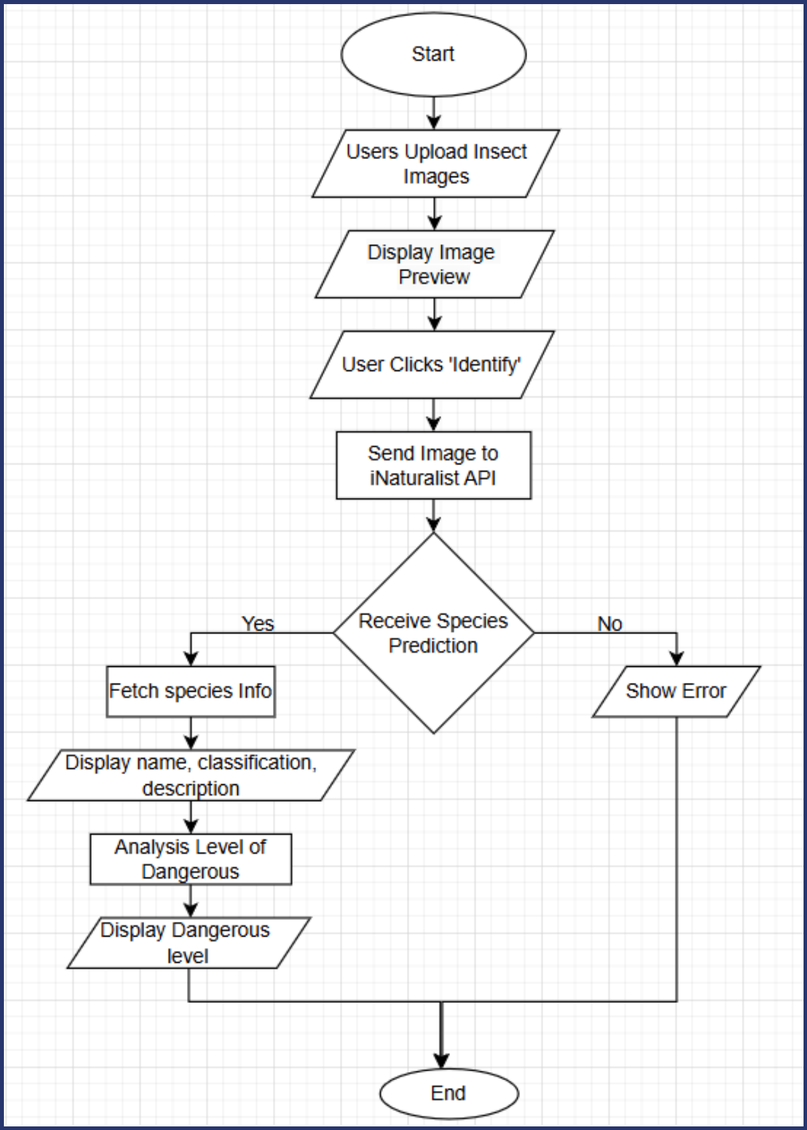

## Picture Insect:Bug Identifier

# METHODOLOGY

Tools that we used:

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

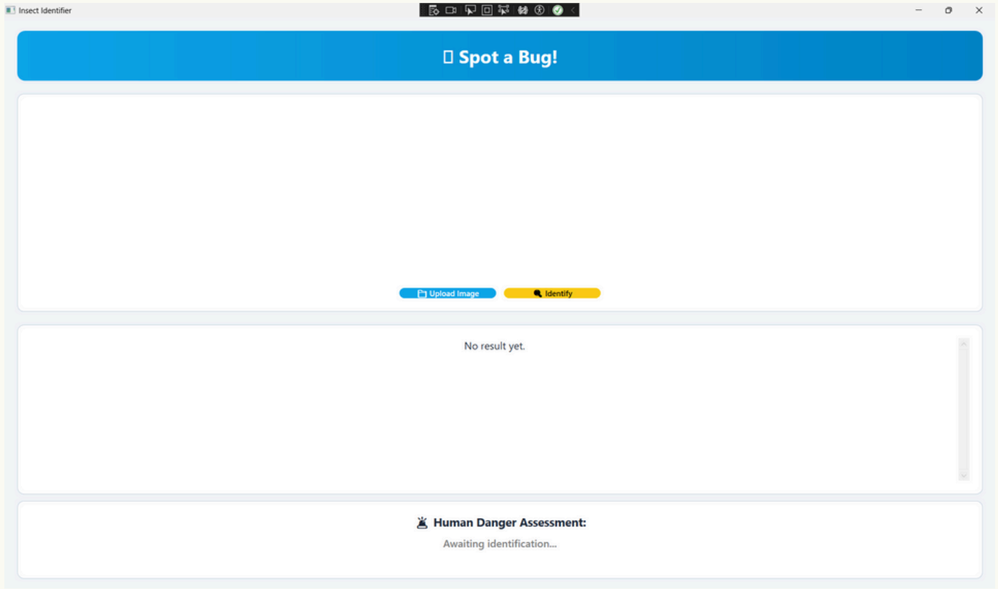
# Flowchart:

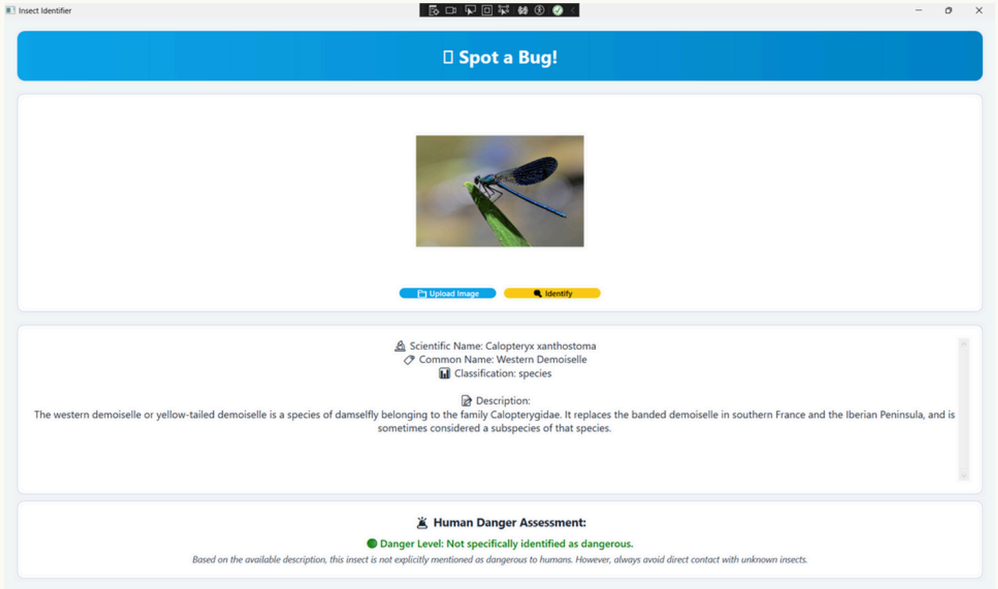



```
private const string ApiToken = "eyJhbGciOiJIUzUxMiJ9.eyJ1c2VyX2lkIjo5MDA2OTA2LCJleHAiOjE3NDg4NzM5Mjh9.e8

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.

# 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.

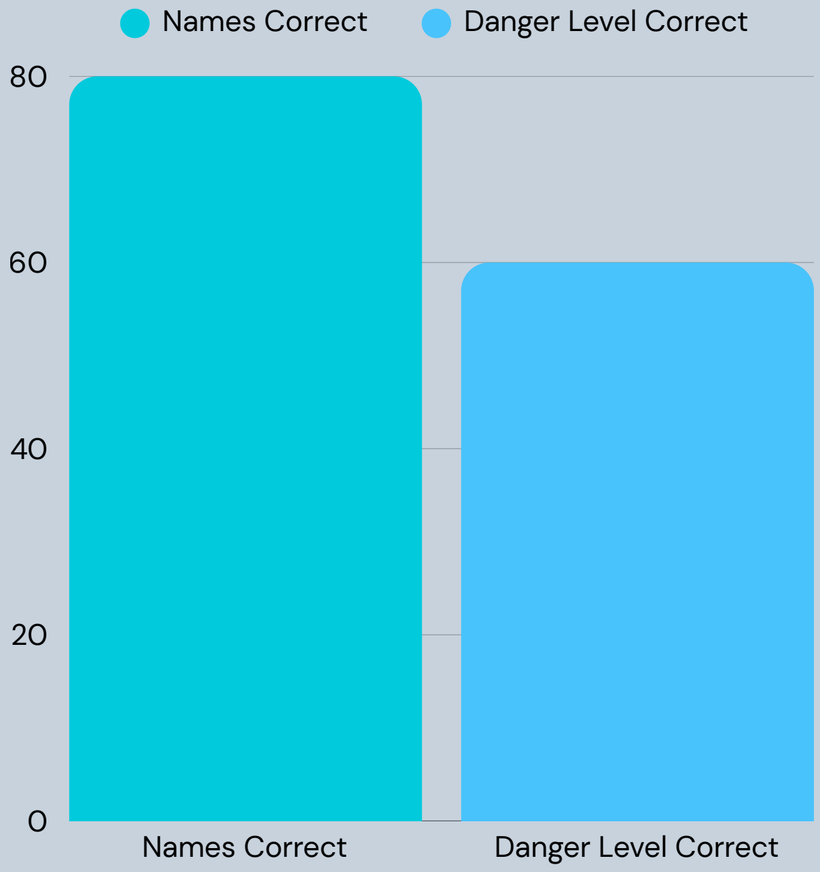
## Human Danger Assessment:

**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.