Experiment 4: Design and Train a Model for Object Detection with Real-Time
Date: 01/03/25

Aim:
To design and train a YOLOv5 model for real-time object detection using a real-life image.

Code:
```
# Step 1: Clone the YOLOv5 repository
!git clone https://github.com/ultralytics/yolov5
%cd yolov5

# Step 2: Install dependencies
!pip install -r requirements.txt

# Step 3: Import required libraries
import torch
from IPython.display import display
from google.colab import files

# Step 4: Upload your real-life photo (taken with your phone)
print("📸 Please upload your photo (with the bag)...")
uploaded = files.upload()

# Step 5: Get the uploaded file path
image_path = list(uploaded.keys())[0]

# Step 6: Load the pre-trained YOLOv5s model
model = torch.hub.load('ultralytics/yolov5', 'yolov5s')

# Step 7: Perform object detection
results = model(image_path)

# Step 8: Print detected objects
print("🧠 Detected objects:")
results.print()

# Step 9: Show the image with bounding boxes
results.show()
```

Output:

Result:
The model successfully detected objects from the real-life image with bounding boxes and printed the object labels, demonstrating a working implementation of object detection using YOLOv5 in real time.