**Project Design Phase**

**Solution Architecture**

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| Date | 15 February 2025 |
| Team ID | LTVIP2026TMIDS71321 |
| Project Name | Dog Breed Identification using Transfer Learning |
| Maximum Marks | 4 Marks |

**Solution Architecture**

The proposed solution architecture for the Dog Breed Identification system is designed to connect the user interface, deep learning model, and backend server efficiently.

The system consists of three main layers:

**1️⃣ User Interface Layer**

The user interacts with the web application through a browser. The interface is developed using HTML, CSS, and JavaScript. The user uploads a dog image through the webpage.

**2️⃣ Application Layer**

The Flask framework handles user requests. When an image is uploaded:

* The image is received by the Flask server.
* The image is preprocessed (resized to 224×224, normalized).
* The processed image is sent to the trained CNN model.

**3️⃣ Model Layer**

The system uses transfer learning with the pre-trained CNN model  
**VGG19**

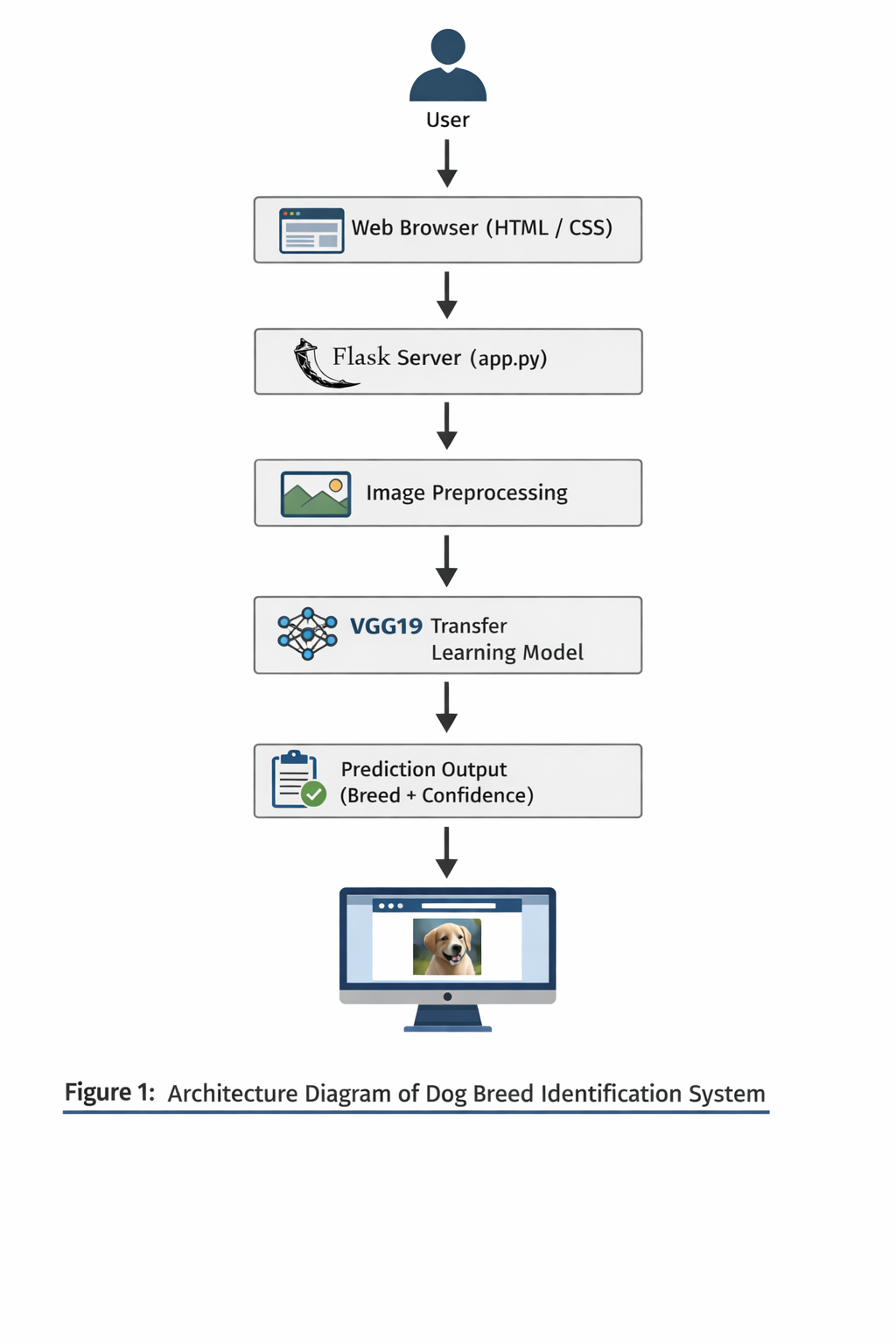
* Pre-trained on ImageNet dataset
* Final layers modified for 20 dog breed classification
* Softmax activation used for prediction

The model predicts the dog breed and returns:

* Predicted Breed Name
* Confidence Score

The result is displayed back on the web interface.

**Example - Solution Architecture Diagram:**

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