Assignment 1

Assets for LaTeX

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Typography

- **Bold**
- *Italic*
- `Monospaced`
- <u>Underlined</u>
- [Link](#)

Lists

Itemize:

- **Item 1:** Example of an item in an itemize list.
- **Item 2:** Another item demonstrating the use of itemize.
- **Item 3:** Yet another example to show list formatting.

Lists

Enumerate:

1. **Item 1:** Example of an enumerated item.
2. **Item 2:** Another enumerated item to illustrate the format.
3. **Item 3:** Final item in the enumerated list.

Blocks

Note

This is a note block that provides additional information or comments about the topic discussed.

Example

Here is an example block that demonstrates how to use this particular format for presenting examples.

Alert

This alert block highlights important warnings or critical information that needs attention.

Mathematics

Let f and g be functions where $g : A \to B$ and $f : B \to \mathbb{R}$. Suppose g is differentiable at $x \in A$ and f is differentiable at $g(x)$. Then the composition function $f \circ g$ is differentiable at x, and its derivative is given by:

$$\frac{d}{dx}\left[f(g(x))\right] = f'(g(x)) \cdot g'(x). \tag{1}$$

Code

```python
# Model definition
model = Sequential()
model.add(Flatten(input_shape=(28, 28)))
model.add(Dense(128, activation='relu'))
model.add(Dense(64, activation='relu'))
model.add(Dense(10, activation='softmax'))
model.compile(optimizer='adam', loss='
    categorical_crossentropy', metrics=['accuracy'])

# Model Training
history = model.fit(X_train, y_train, epochs=10, batch_size
    =32, validation_split=0.2)

# Model Evaluation
test_loss, test_acc = model.evaluate(X_test, y_test)
```

Algorithms

```
procedure BUBBLESORT(array)
    n ← length(array)
    for i ← 0 to n − 1 do
        for j ← 0 to n − i − 2 do
            if array[j] > array[j + 1] then
                swap(array[j], array[j + 1])
            end if
        end for
    end for
end procedure
```
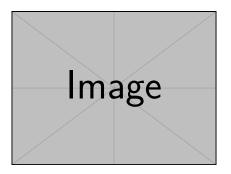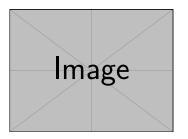
Images
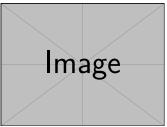

Figure: Example of single image.

Images

Table: Example of multiple images.

Tables

ID	Name	Surname	Birthdate
1	John	Doe	1990-05-15
2	Jane	Smith	1985-11-30
3	Alice	Johnson	2000-07-22
4	Bob	Brown	1992-02-09
5	Carol	Davis	1988-09-19

Table: Example of table.

Bibliography

Here is a reference to a source. For example, *Momentum Contrast for Unsupervised Visual Representation Learning by He et al. (2020)* [**?**] is a placeholder text for a bibliography entry.