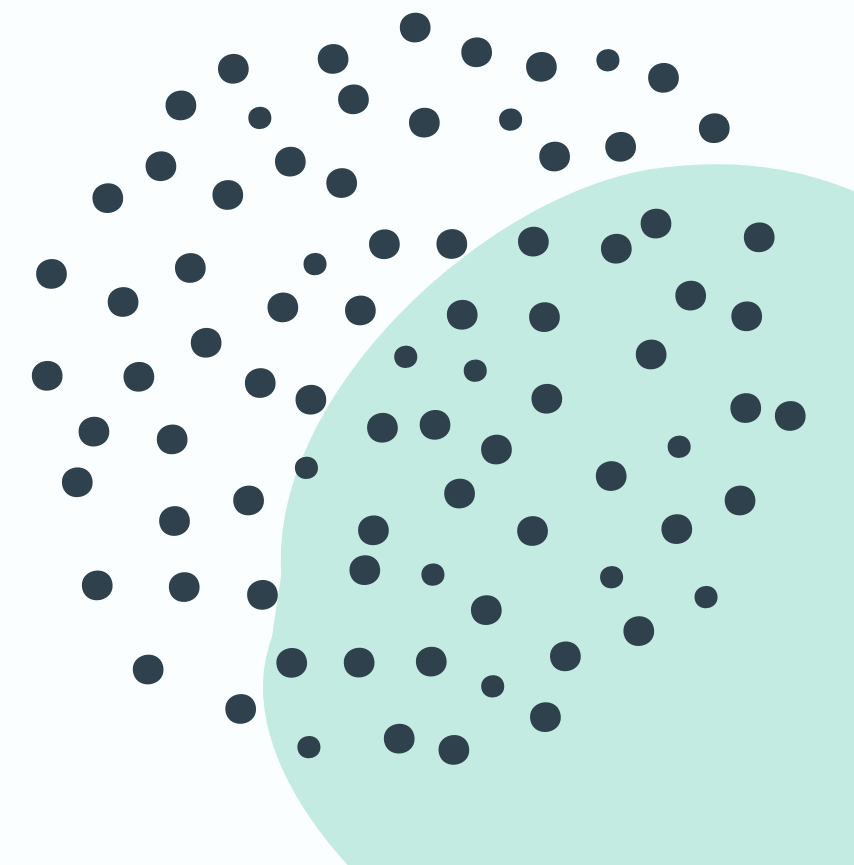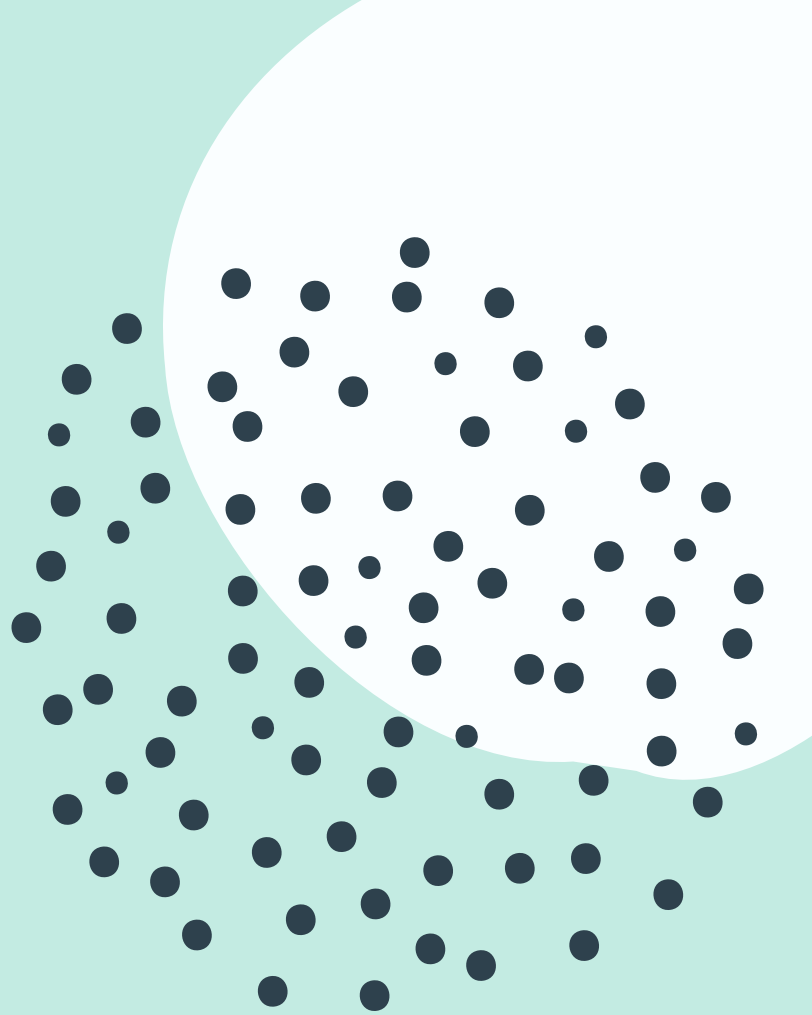# ML MODEL INFO

Classification-Model
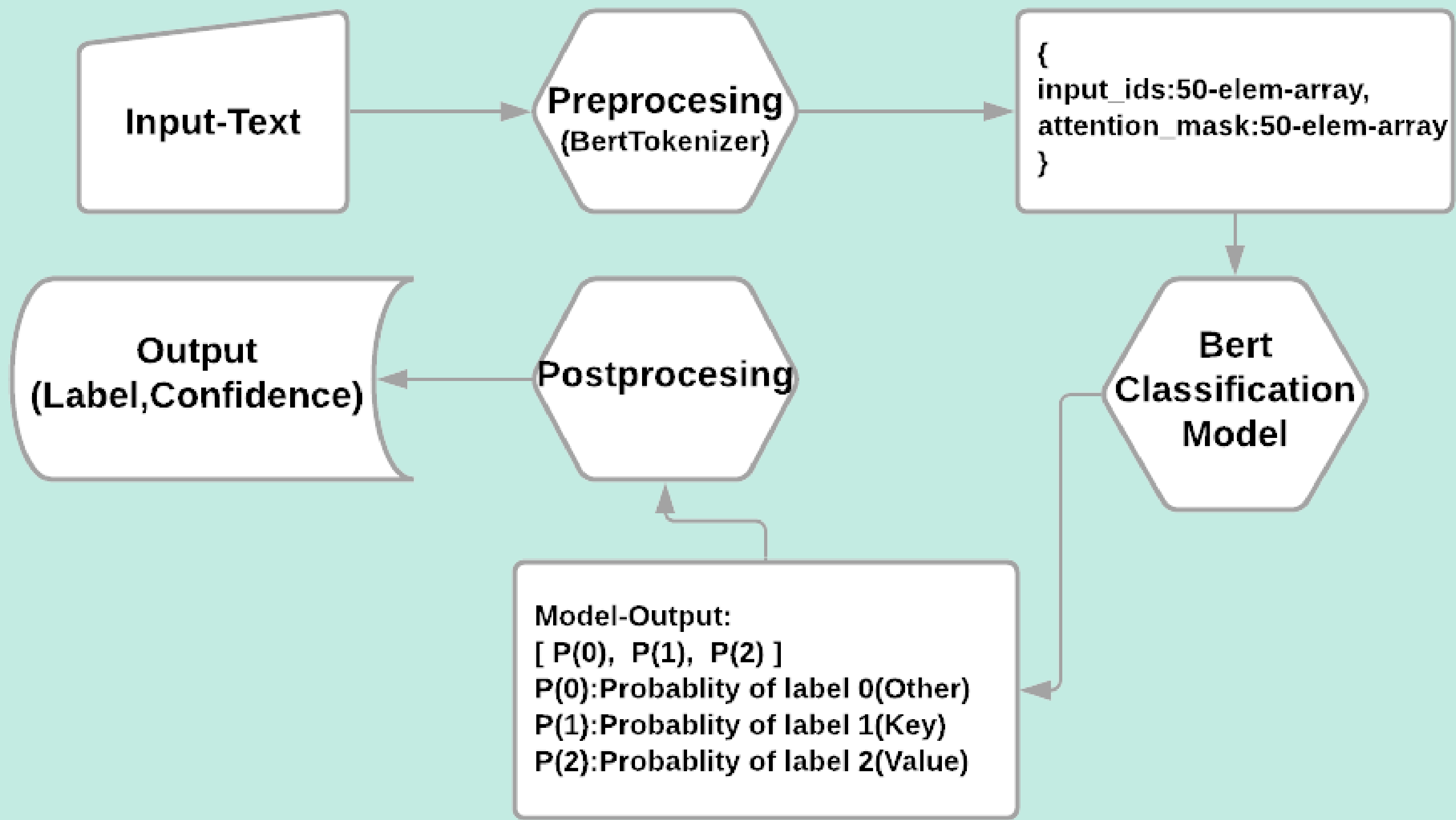
# Classification-Model

```
Model: "model"

_____
 Layer (type)                Output Shape           Param #       Connected to
=================================================================================
 input_ids (InputLayer)      [(None, 50)]           0             []

 attention_mask (InputLayer) [(None, 50)]           0             []

 bert (TFBertMainLayer)      TFBaseModelOutputWi    108310272     ['input_ids[0][0]',
                             thPoolingAndCrossAt                   'attention_mask[0][0]']
                             tentions(last_hidde
                             n_state=(None, 50,
                             768),
                              pooler_output=(Non
                             e, 768),
                              past_key_values=No
                             ne, hidden_states=N
                             one, attentions=Non
                             e, cross_attentions
                             =None)

 dense (Dense)               (None, 1024)           787456        ['bert[0][1]']

 outputs (Dense)             (None, 3)              3075          ['dense[0][0]']

=================================================================================
Total params: 109,100,803
Trainable params: 109,100,803
Non-trainable params: 0
```

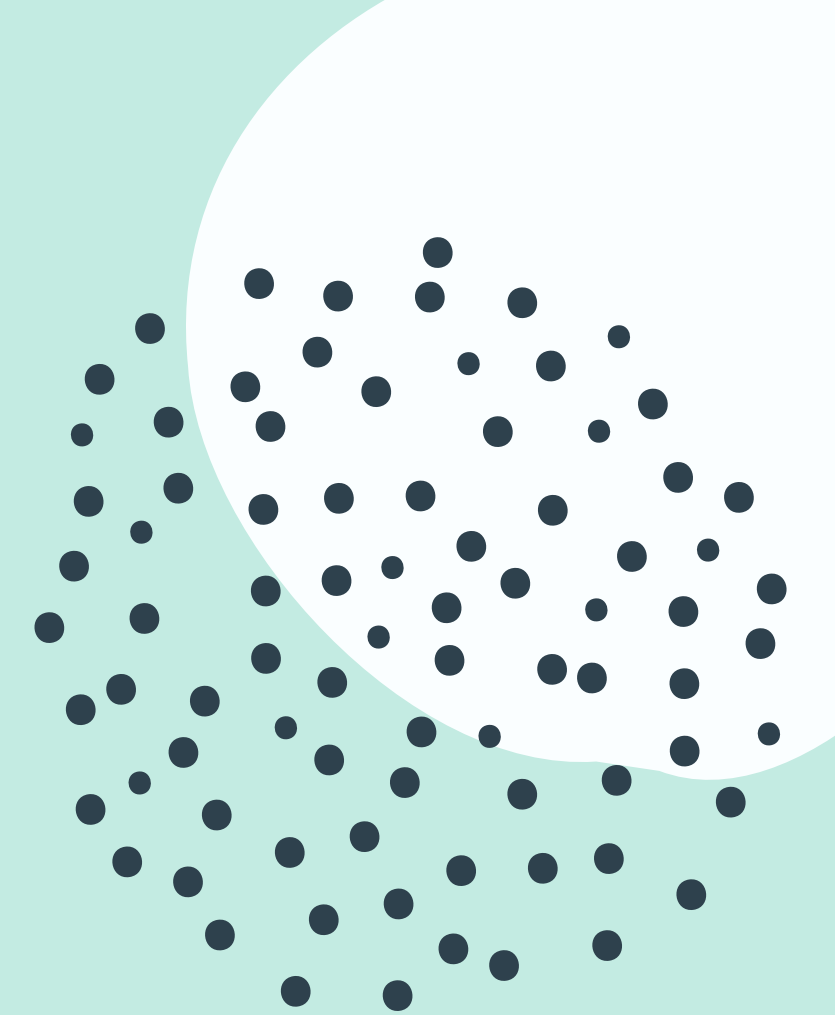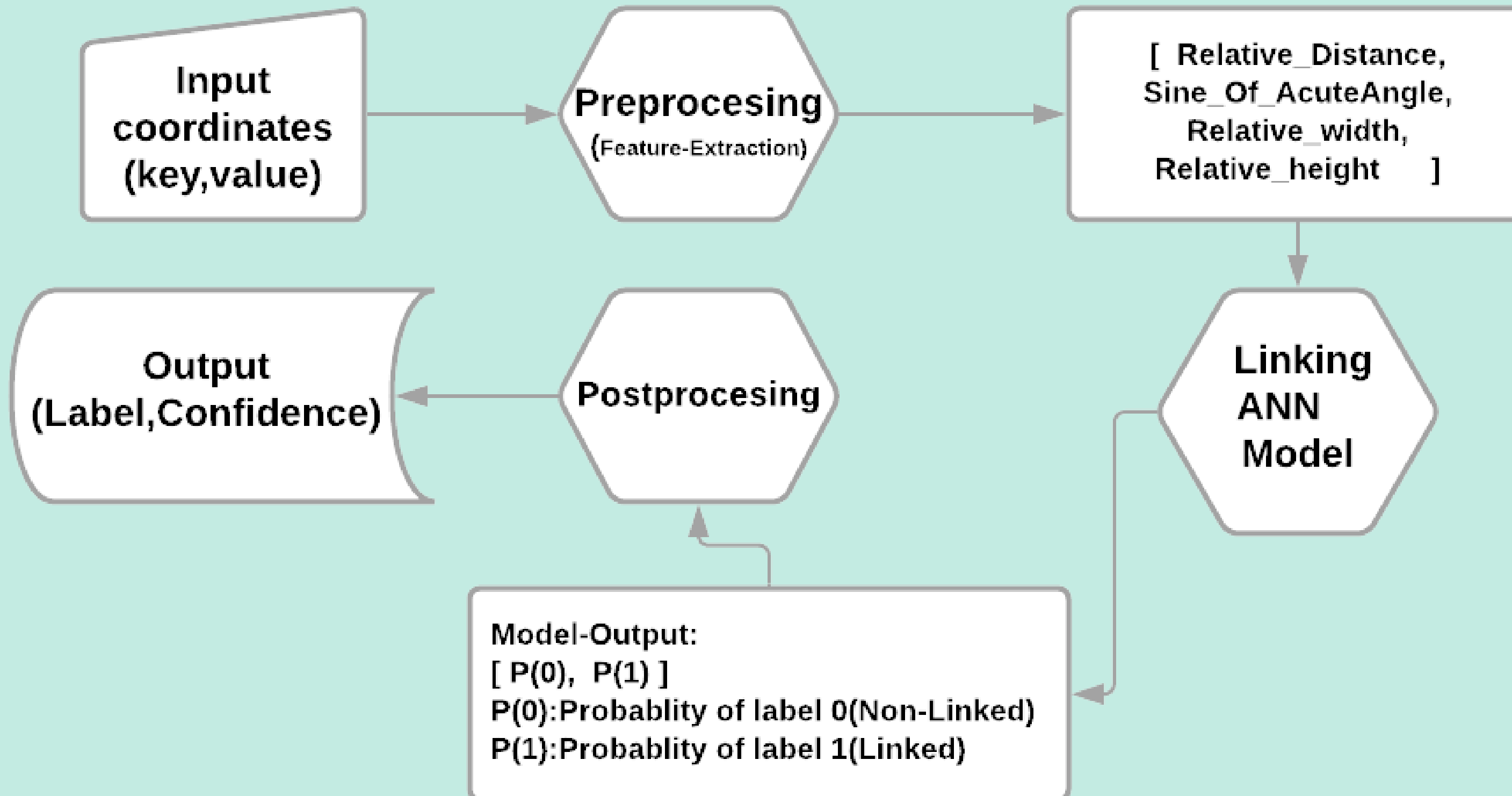# Classification-Model

Confusion Matrix

ROC Curves
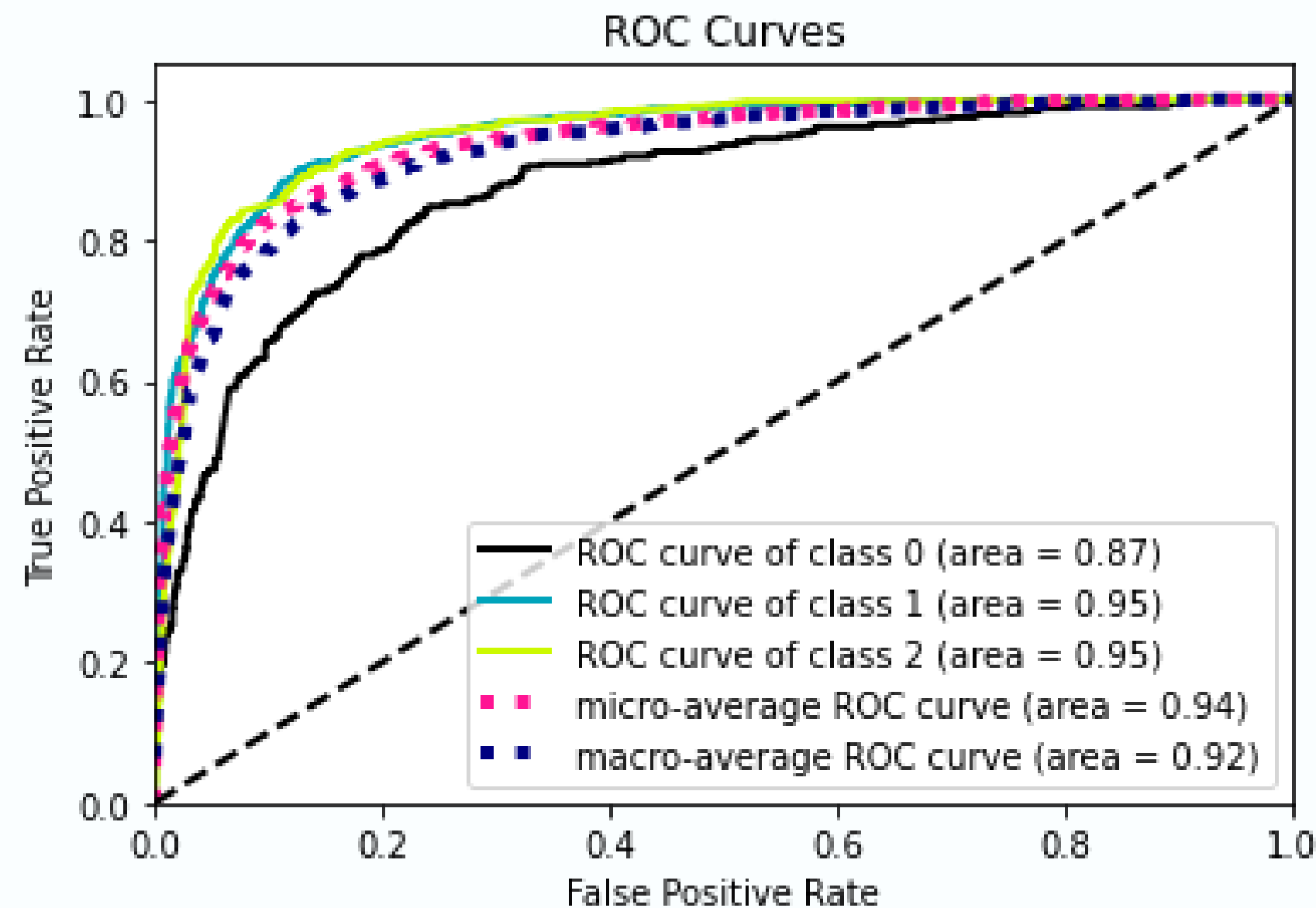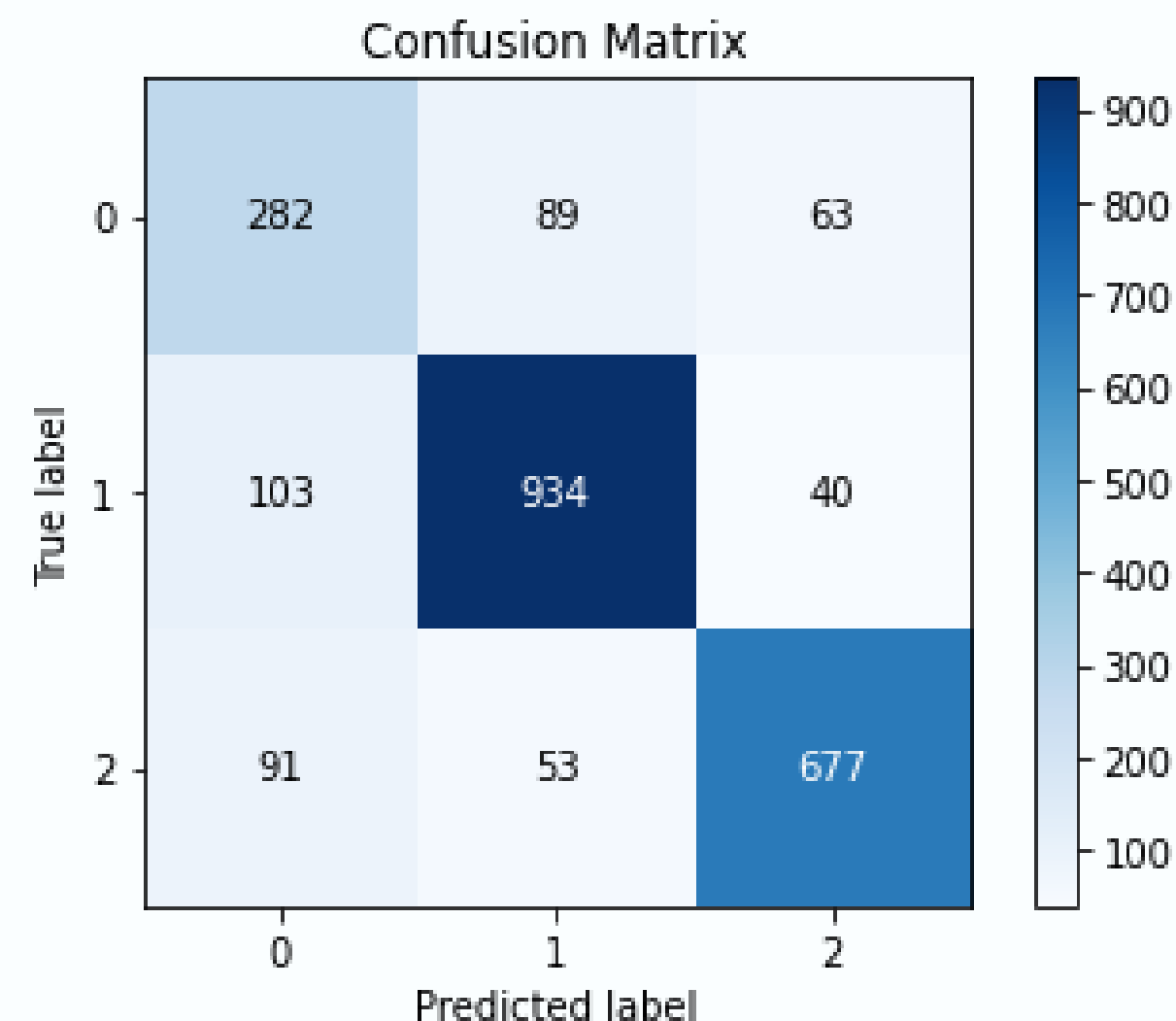

```
F1-Score
class(0) : Other : 0.6197802197802198
class(1) : Key : 0.8676265675801209
class(2) : Value : 0.845721424109312
```

Linking-Model

Input coordinates (key,value) → Preprocesing (Feature-Extraction) → [Relative_Distance, Sine_Of_AcuteAngle, Relative_width, Relative_height]

Output (Label,Confidence) ← Postprocesing ← Linking ANN Model

Model-Output:
[P(0), P(1)]
P(0):Probablity of label 0(Non-Linked)
P(1):Probablity of label 1(Linked)

Linking-Model

```
Model: "sequential_1"

_____
 Layer (type)                Output Shape              Param #
=================================================================
 dense_4 (Dense)             (None, 512)               2560

 dense_5 (Dense)             (None, 512)               262656

 dense_6 (Dense)             (None, 512)               262656

 dense_7 (Dense)             (None, 2)                 1026

=================================================================
Total params: 528,898
Trainable params: 528,898
Non-trainable params: 0
_____
```
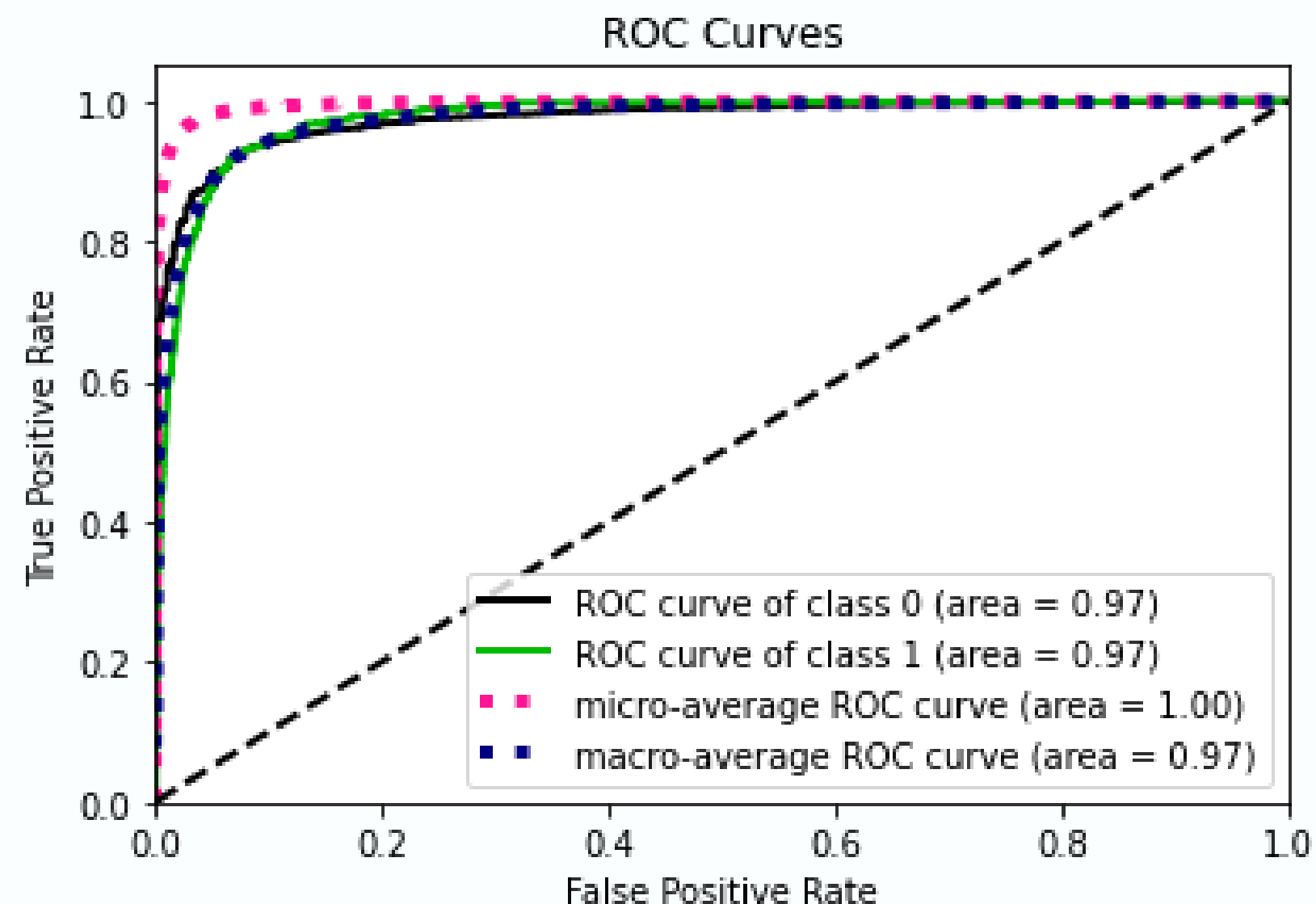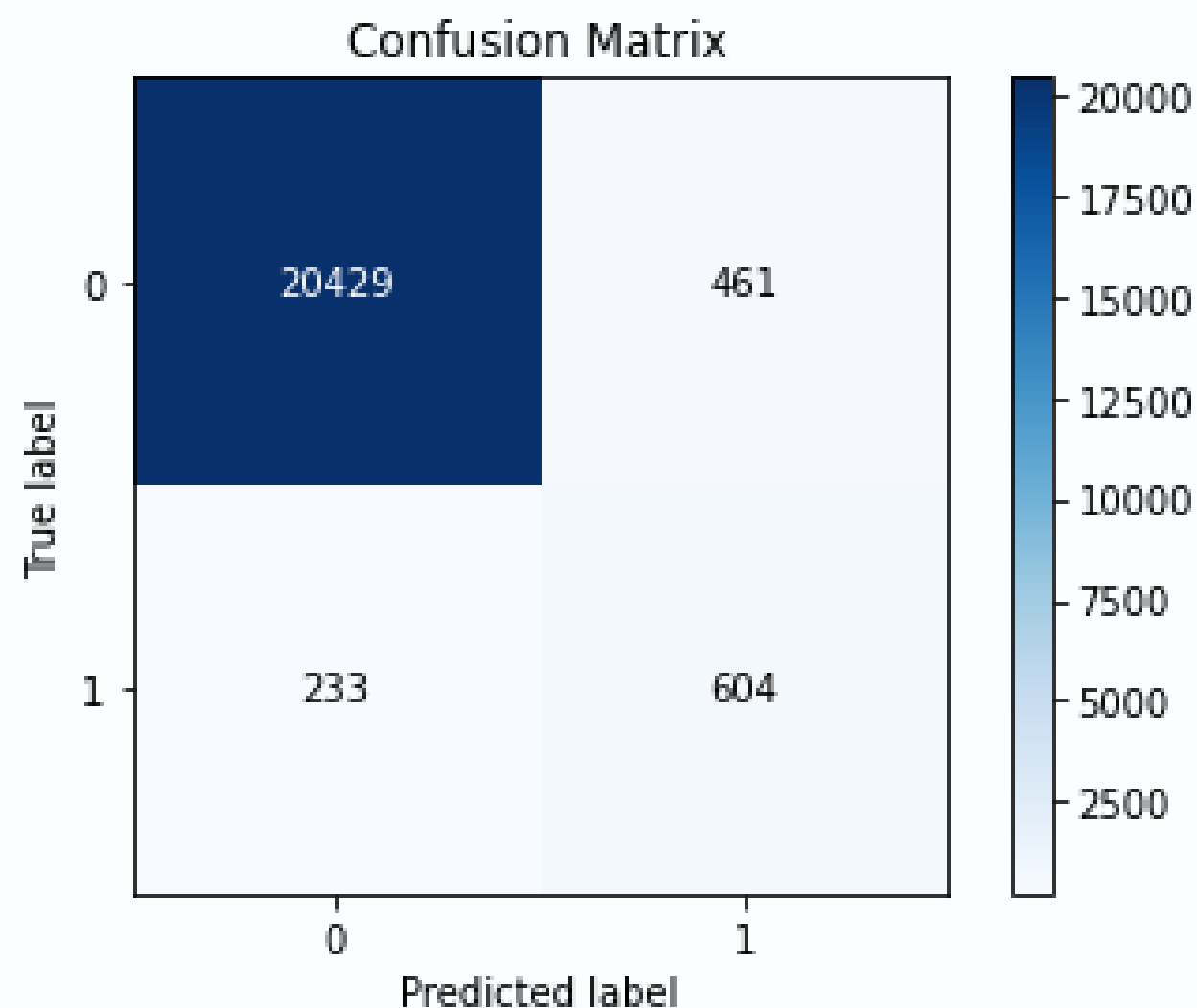
Linking-Model

Confusion Matrix

	Predicted 0	Predicted 1
True 0	20429	461
True 1	233	604

ROC Curves

ROC curve of class 0 (area = 0.97)
ROC curve of class 1 (area = 0.97)
micro-average ROC curve (area = 1.00)
macro-average ROC curve (area = 0.97)

F1-Score
class(0) : not-linking : 0.9832980361956103
class(1) : linking : 0.6351209253417456