

# Класифікація спаму

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# Тема/мета

- Створення застосунку для перевірки повідомлень на спам на основі машинного навчання.
- Використані технології:
  - Python Django Bootstrap
  - Tensorflow Keras

# Базова 3-шарова модель нейромережі

```
82
83 | train, test = read_all_data()
84
85 | train_data_raw, train_labels_raw = split_all_line_data(train)
86 | test_data_raw, test_labels_raw = split_all_line_data(test)
87
88 | tokenizer = Tokenizer()
89 | tokenizer.fit_on_texts(train_data_raw)
90 | train_data_seq = tokenizer.texts_to_sequences(train_data_raw)
91 | test_data_seq = tokenizer.texts_to_sequences(test_data_raw)
92
93 | x_train = vector_queue(train_data_seq, 4000)
94 | x_test = vector_queue(test_data_seq, 4000)
95
96 | y_train = vector_text(train_labels_raw)
97 | y_test = vector_text(test_labels_raw)
98
99 | model = models.Sequential()
100 | model.add(layers.Dense(8, activation='relu', input_shape=(4000,)))
101 | model.add(layers.Dense(8, activation='relu'))
102 | model.add(layers.Dense(1, activation='sigmoid'))
103 | model.compile(optimizer='rmsprop', loss='binary_crossentropy', metrics=['accuracy'])
104
105 | his = model.fit(x_train, y_train, epochs=8, batch_size=100, validation_split=0.5)
106
107 | epochs=range(1, 9)
108 | h = his.history
109 | You, a few seconds ago • Uncommitted changes
110 | results = model.evaluate(x_test, y_test)
111
```

# Передбачення

```
121
122 def predict(test_text):
123     test_text_list = []
124     test_text_list.append(test_text)
125     test_text_sequence = tokenizer.texts_to_sequences(test_text_list)
126     x_test_text = vector_queue(test_text_sequence)
127     pred = model.predict(x_test_text)[0][0]
128
129     print(pred)
130
131     if pred > 0.5:
132         return round(pred, 3), True
133     else:
134         return round(pred, 3), False
```

Відповідь на питання спам чи ні ми отримуємо після того, як навчена нейронна мережа обрахує передані підготовлені дані та поверне результат обчислень у вигляді числа від 0 до 1, що означатиме вірогідність того, чи є введений текст спамом

# Обробка запитів

```
15
16 def detect(message_data):
17     try:
18         chance, pred = predict(message_data)
19         return chance, pred
20     except ValueError as e:
21         return (e.args[0])
22
23 def datapage(request):
24     detection_result = ''
25     spam_chance = 0.0
26     if request.method=='POST':
27         form=ApprovalForm(request.POST)
28         if form.is_valid():
29             message=form.cleaned_data['message']
30             spam_chance, detection_result = detect(message)
31             messages.success(request, detection_result)
32             print(detect(message))
33
34     form=ApprovalForm()
35
36     return render(request, 'dataform/dataform.html', {'form': form , 'result': detection_result, 'spam_chance': spam_chance})
```


# Застосунок



## Test your message on spam

Message\*

Hello, it's me!  
How your quarantine is going?

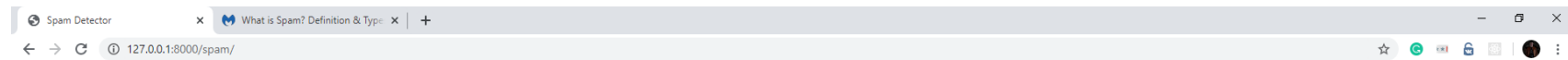


Submit

Cool, it's completely not a spam!

Spam chance: 0.456

# Тестування



## Test your message on spam

Message\*

What comes to mind when you think about spam? Miracle pills from digital doctors and Internet pharmacies that guarantee to grow your hair and other things? How about chain emails like the one that promised you a portion of Bill Gates' fortune if you forwarded the email to your friends? What about the ubiquitous advertisements for XXX, hardest of the hardcore adult video sites? Or do you hear the word "Spam" and think, what's for lunch?

This article is all about spam—and that's spam with a lowercase "s." Not to be confused with the polarizing luncheon meat. Because a lot of people around the world love Spam (especially Guam), but everyone hates spam.

Submit

Your message looks like spam. Try to rewrite it.

Spam chance: 0.515

Дякую за увагу