

Analisis Sentimen pada Ulasan Hotel dengan Word2Vec & Random Forest

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Panduan Aplikasi Analisis Sentimen pada Ulasan Hotel dengan Word2Vec & Random Forest

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Daftar Isi

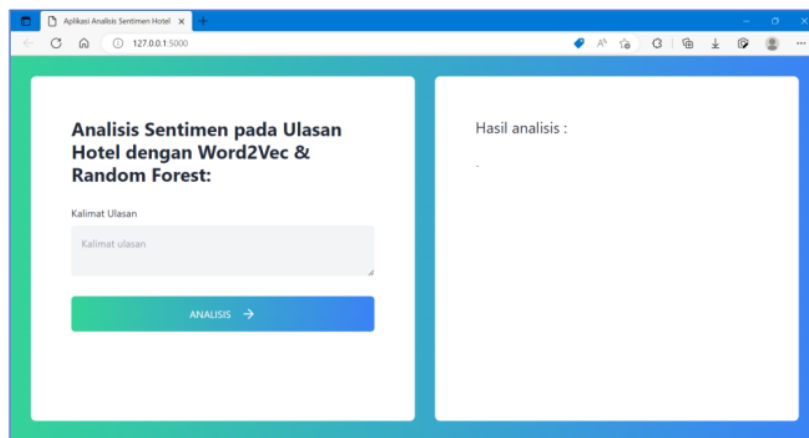
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Deskripsi Aplikasi

Aplikasi Analisis Sentimen pada Ulasan Hotel dengan Word2Vec & Random Forest merupakan aplikasi berbasis website yang dapat menganalisis sentimen pada ulasan hotel. Aplikasi ini dibuat menggunakan bahasa pemrograman python. Dalam program ini, ekstraksi fitur menggunakan Word2Vec dan menggunakan Random Forest untuk menganalisis sentimen.

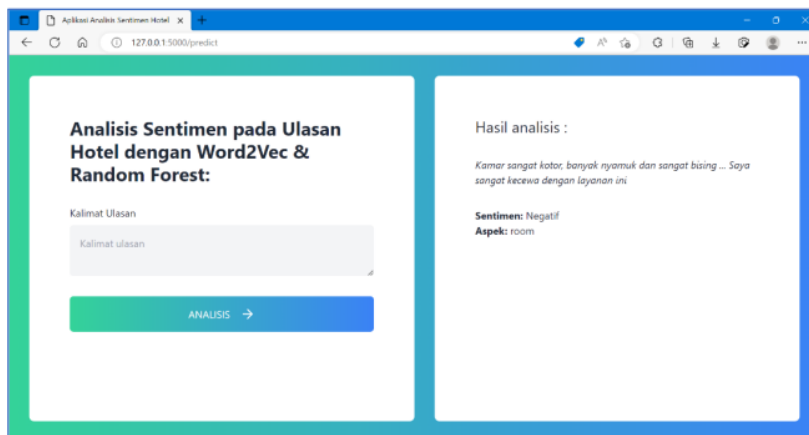
Petunjuk Penggunaan

Tampilan utama pada aplikasi ini dapat dilihat pada gambar 1. Pada tampilan utama terdapat textbox yang digunakan sebagai input kalimat ulasan pada hotel untuk dianalisis sentimennya.



Gambar 1. Tampilan utama

Untuk melakukan analisis sentimen kita dapat memasukkan kalimat ulasan pada textbox lalu tekan tombol **ANALISIS**. Setelah tombol ditekan, maka akan muncul hasil berupa sentimen dan aspek sentimennya. Contoh hasil analisis dapat dilihat pada gambar 2.



Gambar 2. Hasil Analisis

Source Code

app.py

```
1 from flask import Flask, request, render_template
2 from gensim.models import Word2Vec, word2vec
3 import pickle
4 import re
5 import numpy as np
6
7 app = Flask(__name__)
8
9 word2vec_model = 'word2vec_model'
10 aspect_model = 'aspect_model.pkl'
11 sentiment_model = 'sentiment_model.pkl'
12
13 model_word2vec = Word2Vec.load(word2vec_model)
14 model_file = open(aspect_model, 'rb')
15 model = pickle.load(model_file, encoding='bytes')
16
17 model2_file = open(sentiment_model, 'rb')
18 model2 = pickle.load(model2_file, encoding='bytes')
19
20 num_features = 300
21
22 @app.route('/')
23 def index():
24     return render_template('index.html', review_text="-")
25
26 @app.route('/predict', methods=['POST'])
27 def predict():
28     req = request.form
29
30     review_text = req.get("ulasan")
31
32     data = []
33     data_reviews = []
34     data.append(review_text)
35
36     for review in data:
37         data_reviews.append(review_to_wordlist(review))
38
39     dataVecs = get_avg_feature_vecs(data_reviews, model_word2vec, num_features)
40     prediction_aspect = model.predict(dataVecs)
41     prediction_sentiment = model2.predict(dataVecs)
42     output = prediction_aspect[0]
43     if prediction_sentiment[0] == 0:
44         output2 = "Negatif"
45     else:
46         output2 = "Positif"
47
48     return render_template('index.html', aspect=output, sentiment=output2,
49 review_text=review_text)
50
51 def make_feature_vec(words, model, num_features):
52     feature_vec = np.zeros((num_features,), dtype="float32") # pre-initialize (for
53 speed)
54     nwords = 0
55     index2word_set = set(model.wv.index2word) # words known to the model
56
57     for word in words:
58         if word in index2word_set:
59             nwords = nwords + 1
60             feature_vec = np.add(feature_vec, model[word])
61
62     feature_vec = np.divide(feature_vec, nwords)
63     return feature_vec
64
65 def get_avg_feature_vecs(reviews, model, num_features):
66     counter = 0
67     review_feature_vecs = np.zeros((len(reviews), num_features), dtype='float32') #
68 pre-initialize (for speed)
69
70     for review in reviews:
71         review_feature_vecs[counter] = make_feature_vec(review, model, num_features)
72         counter = counter + 1
73     return review_feature_vecs
74
75 def review_to_wordlist(review):
76     # remove non-letters
77     review_text = re.sub("[^a-zA-Z]", " ", review)
78
79     # convert to lower case and split at whitespace
80     words = review_text.lower().split()
81
82     return words
83
84 if __name__ == '__main__':
85     app.run(debug=True)
```

Index.html

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <meta charset="UTF-8" />
5     <meta http-equiv="X-UA-Compatible" content="IE=edge" />
6     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
7     <link
8       href="https://unpkg.com/tailwindcss@2/dist/tailwind.min.css"
9       rel="stylesheet"
10    />
11    <title>Aplikasi Analisis Sentimen Hotel</title>
12  </head>
13  <body
14    class="
15      flex flex-col
16      justify-between
17      item-center
18      p-8
19      min-h-screen
20      bg-gradient-to-r
21      from-green-400
22      to-blue-500
23      text-gray-800
24      md:flex-row
25    ">
26    >
27    <div class="grid grid-cols-1 md:grid-cols-2">
28      <main class="bg-white p-16 rounded-lg">
29        <h1 class="text-3xl font-bold mb-8">
30          Analisis Sentimen pada Ulasan Hotel dengan Word2Vec & Random Forest:
31        </h1>
32
33        <form
34          action="{{ url_for('predict' ) }}"
35          method="post"
36          class="flex flex-col"
37        >
38          <label for="Usia" class="mb-2">Kalimat Ulasan</label>
39          <textarea
40            name="ulasan"
41            placeholder="Kalimat ulasan"
42            required="required"
43            class="p-4 bg-gray-100 rounded-md"
44          ></textarea>
45
46
47          <button
48            type="submit"
49            class="
50              flex
51              justify-center
52              align-center
53              mt-8
54              p-4
55              bg-gradient-to-r
56              from-green-400
57              to-blue-500
58              text-white
59              rounded-md
60            ">
61
62          >
63          ANALISIS
64          <svg
65            xmlns="http://www.w3.org/2000/svg"
66            width="24"
67            height="24"
68            viewBox="0 0 24 24"
69            fill="none"
70            stroke="currentColor"
71            stroke-width="2"
72            stroke-linecap="round"
73            stroke-linejoin="round"
74            class="feather feather-arrow-right ml-4"
75          >
76            <line x1="5" y1="12" x2="19" y2="12"></line>
77            <polyline points="12 5 19 12 12 19"></polyline>
78          </svg>
79        </button>
80      </form>
81    </main>
82    <section class="mt-8 flex-auto rounded-lg md:mt-0 md:ml-8">
83      <div class="bg-white h-full p-16 rounded-lg">
84        <h1 class="text-2xl mb-8">
85          Hasil analisis :
86        </h1>
87        <h4 class="text-1xl italic">{{ review_text }}</h4>
88        {% if (review_text) != "" %}
89        <div class="mt-8">
90          <p><b>Sentimen:</b> {{ sentiment }} </p>
91          <p><b>Aspek:</b> {{ aspect }}</p>
92        </div>
93        {% endif %}
94      </div>
95    </section>
96  </div>
97 </body>
98 </html>
```

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