

Лабораторна робота №5
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В цій роботі порівняємо онлайн-сервіси **Sentiment Analyzer** (від MonkeyLearn) та **bertweet-base-sentiment-analysis** (на платформі Hugging Face). Також проаналізуємо текст на власному пристрої завдяки бібліотеці **Stanza**.

Аналізуватимемо позитивні та негативні відгуки (Google Play, Metacritic та ін.), при цьому цікаво розглянути як і коментарі від користувачів, так і рецензії від критиків.

Код, використаний для тестування бібліотеки Stanza (зауважте, що необхідні моделі та пакети коду обираються та завантажуються бібліотекою Stanza самостійно):

```
import stanza
from pathlib import Path
import sys

if len(sys.argv) < 2:
    print("Usage: ./lab5.py FILENAME [--split-sentences]")
    exit(1)

text = Path(sys.argv[1]).read_text()
split_sentences = len(sys.argv) > 2 and sys.argv[2] == "--split-sentences"

nlp = stanza.Pipeline(lang='en', processors='tokenize,sentiment',
    tokenize_no_sspl=(not split_sentences))
doc = nlp(text)
# 0 = bad, 1 = neutral, 2 = good
if split_sentences:
    for i, sentence in enumerate(doc.sentences):
        print("Sentence #%d -> %d" % (i, sentence.sentiment))
else:
    print("Text -> %d" % (doc.sentences[0]))
```

Зауважимо, що бібліотека дає можливість аналізувати як і окремі речення, так і текст в цілому.

Завантажені пакети Stanza:

```
=====
| Processor | Package |
-----
| tokenize  | combined |
| mwt       | combined |
| sentiment | sstplus  |
=====
```

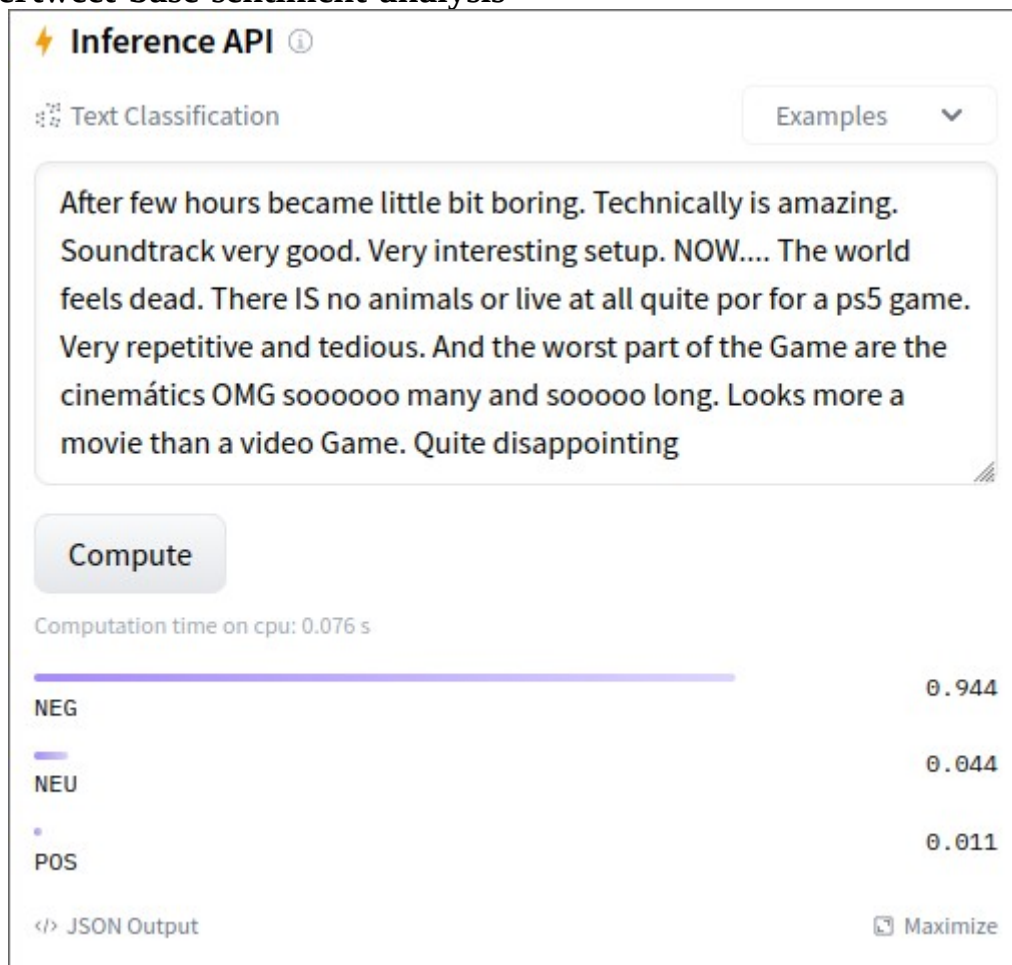
На жаль, пакету для процесора sentiment для української мови поки не існує.

1. Негативні відгуки

1.1. Відгук від користувача

After few hours became little bit boring. Technically is amazing. Soundtrack very good. Very interesting setup. NOW.... The world feels dead. There IS no animals or live at all quite por for a ps5 game. Very repetitive and tedious. And the worst part of the Game are the cinematics OMG soooooo many and sooooo long. Looks more a movie than a video Game. Quite disappointing

1.1.1. bertweet-base-sentiment-analysis



Правильно.

1.1.2. MonkeyLearn

Test with your own text

After few hours became little bit boring.
Technically is amazing. Soundtrack very good. Very interesting setup. NOW.... The world feels dead.
There IS no animals or live at all quite por for a ps5 game. Very repetitive and tedious. And the worst part of the Game are the cinemátics OMG soooooo

Classify Text

Results

TAG	CONFIDENCE
Negative	78.9%

Правильно.

1.1.3. Stanza

```
> python lab5.py neg1.txt
```

```
Text -> 0
```

Оцінка 0 означає «негативно».

Правильно.

Оцінимо окремі речення:

```
> python lab5.py neg1.txt --split-sentences
```

```
Sentence #0 -> 1
```

```
Sentence #1 -> 2
```

```
Sentence #2 -> 2
```

```
Sentence #3 -> 2
```

```
Sentence #4 -> 1
```

```
Sentence #5 -> 0
```

```
Sentence #6 -> 0
```

```
Sentence #7 -> 0
```

```
Sentence #8 -> 0
```

```
Sentence #9 -> 1
```

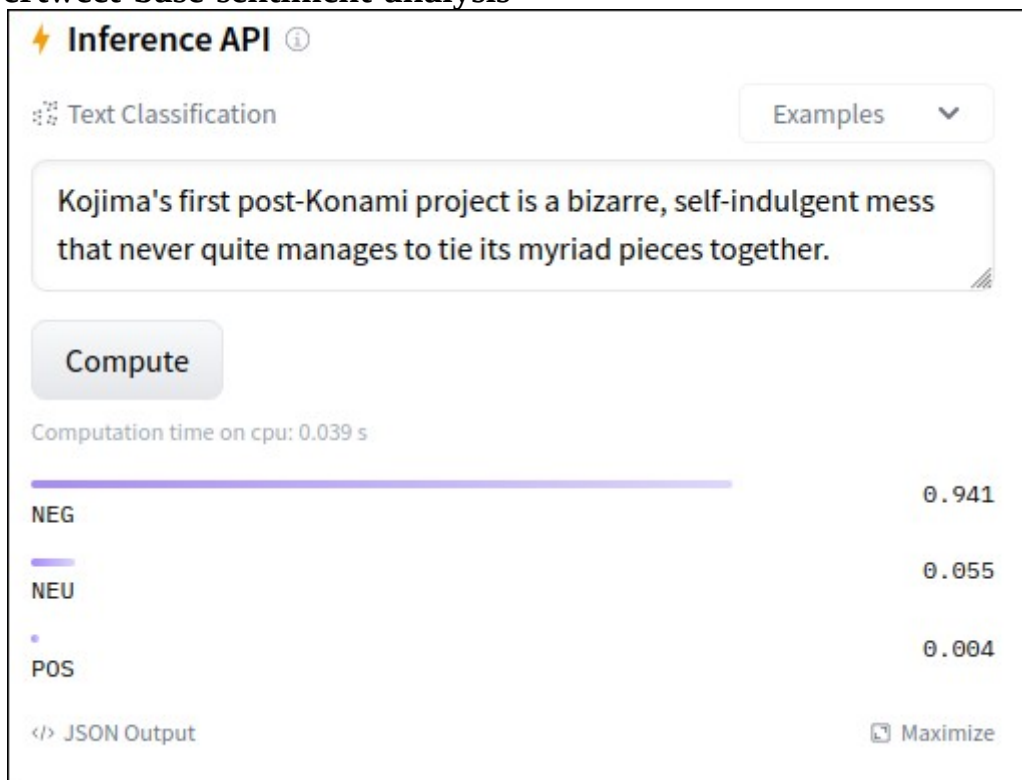
```
Sentence #10 -> 0
```

Правильно: на початку тон був більш позитивний.

1.2. Рецензія від критика

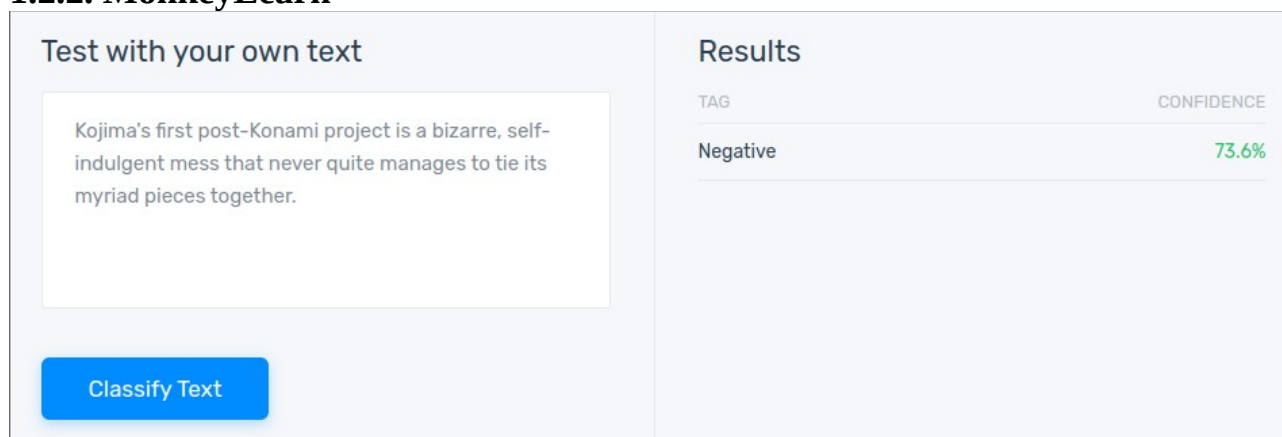
Kojima's first post-Konami project is a bizarre, self-indulgent mess that never quite manages to tie its myriad pieces together.

1.2.1. bertweet-base-sentiment-analysis



Правильно.

1.2.2. MonkeyLearn



Правильно.

1.2.3. Stanza


```
> python lab5.py neg2.txt
```

Text -> 0

Оцінка 0 означає «негативно».

Правильно.

1.3. Український текст

 ChatGPT
Оцінки та відгуки

G Grey

★ ★ ★ ★ ★ 12 грудня 2023 р.

Абсолютно безглуздий додаток, постійно вигадує якусь маячню, а коли йому вказуєш, що це неправильна інформація, він каже "Вибачте за помилку. Так це насправді..." Інформації, яку він надає, можна довіряти в одному-єдиному випадку - якщо ти хочеш, щоб тебе вважали ідіотом. Додаток - просто непотріб, користі від нього ніякої, видаляю

24 користувачі вважають цей відгук корисним

Ви вважаєте цей відгук корисним?

1.3.1. bertweet-base-sentiment-analysis

Не запустилася. Input is too long for this model, shorten your input or use 'parameters': {'truncation': 'only_first'} to run the model only on the first part.

1.3.2. MonkeyLearn

Test with your own text

Абсолютно безглуздий додаток, постійно вигадує якусь маячню, а коли йому вказуєш, що це неправильна інформація, він каже "Вибачте за помилку. Так це насправді..." Інформації, яку він надає, можна довіряти в одному-єдиному випадку - якщо ти хочеш, щоб тебе вважали ідіотом.

Classify Text

Results

TAG	CONFIDENCE
Negative	87.9%

Правильно.

1.3.3. Stanza

```
> python lab5.py neg2.txt
Text -> 2
> python lab5.py neg2.txt --split-sentences
Sentence #0 -> 2
Sentence #1 -> 0
Sentence #2 -> 1
Sentence #3 -> 1
```

Оцінка 2 означає «позитивно». Stanza не впоралася з завданням, *але це не дивно, оскільки модель розрахована на англійську мову.*

2. Позитивні відгуки

2.1. Відгук від користувача

10

IGNOTUSP

DEC 2, 2023

User Review

First, do not believe the negative comments about this being a walking simulator. It might feel that way at first, but if you get past the introduction and early game, there is much more to the game. You are frequently presented with new challenges and there are boss fights. You will gain new tools to overcome these challenges and even fight back. You can set up routes to help other porters get by and once you connect a zone, you can use the things other players set up to traverse terrain. The key, though, is you have to take your time and these features will unfold as you go.

2.1.1. bertweet-base-sentiment-analysis

⚡ Inference API ⓘ

🔍 Text Classification

Examples ▾

First, do not believe the negative comments about this being a walking simulator. It might feel that way at first, but if you get past the introduction and early game, there is much more to the game. You are frequently presented with new challenges and there are boss fights. You will gain new tools to overcome these challenges and even fight back. You can set up routes to help other porters get by and once you connect a zone, you can use the things other players set up to traverse terrain. The key, though, is you have to take your time and these features will unfold as you go.

Compute

Computation time on cpu: 0.089 s

NEU

0.707

POS

0.286

NEG

0.008

</> JSON Output

🔍 Maximize

Визначено як здебільшого «нейтральний», хоча користувач залишив оцінку 10.

2.1.2. MonkeyLearn

Test with your own text

First, do not believe the negative comments about this being a walking simulator. It might feel that way at first, but if you get past the introduction and early game, there is much more to the game. You are frequently presented with new challenges and there are boss fights. You will gain new tools to

Classify Text

Results

TAG	CONFIDENCE
Positive	56.9%

Правильно.

2.1.3. Stanza

```
> python lab5.py pos1.txt
```

```
Text -> 2
```

Оцінка 2 означає «позитивно».

Правильно.

Оцінимо окремі речення:

```
> python lab5.py pos1.txt --split-sentences
```

```
Sentence #0 -> 1
```

```
Sentence #1 -> 1
```

```
Sentence #2 -> 1
```


```
Sentence #3 -> 2
```

```
Sentence #4 -> 1
```

```
Sentence #5 -> 1
```

Цікаво, що більшість речень нейтральні, але загалом текст позитивний.


2.2. Рецензія від критика



Critic Review

Death Stranding is the most unique big-budget game I've ever played, a socially-minded injection of inventive ideas into a genre that has long survived by being lazy and brutish. This ambitious formula-flipper is brimming with empathy and carefully courts cinematic influences, an ensemble cast and a world of eye-watering scale, delivering a sticky gameplay loop to tie it all together and create a console generation-defining experience.

2.2.1. bertweet-base-sentiment-analysis

 **Inference API** ⓘ

Text Classification Examples ▾

Death Stranding is the most unique big-budget game I've ever played, a socially-minded injection of inventive ideas into a genre that has long survived by being lazy and brutish. This ambitious formula-flipper is brimming with empathy and carefully courts cinematic influences, an ensemble cast and a world of eye-watering scale, delivering a sticky gameplay loop to tie it all together and create a console generation-defining experience.

Compute

Computation time on cpu: 0.083 s

POS	0.984
NEU	0.015
NEG	0.001

</> JSON Output Maximize

Правильно.

2.2.2. MonkeyLearn

Test with your own text

of inventive ideas into a genre that has long survived by being lazy and brutish. This ambitious formula-flipper is brimming with empathy and carefully courts cinematic influences, an ensemble cast and a world of eye-watering scale, delivering a sticky gameplay loop to tie it all together and create a console generation-defining experience.

Classify Text

Results

TAG	CONFIDENCE
Positive	98.7%

Правильно.

2.2.3. Stanza

```
> python lab5.py pos2.txt  
Text -> 2
```

Правильно.

Оцінимо окремі речення:

```
> python lab5.py pos2.txt --split-sentences  
Sentence #0 -> 2  
Sentence #1 -> 2
```

Правильно.

3. Змішані відгуки

3.1. Відгук від користувача

6

MadMN9

FEB 26, 2022

If I knew coming into the game that the majority of me painstakingly having to balance packages on my back as I travel a diverse world I would have just saved myself the money. World is beautiful and voice acting and cutscenes are good but that's about it.

3.1.1. bertweet-base-sentiment-analysis

⚡ Inference API ⓘ

🔗 Text Classification

Examples ▾

If I knew coming into the game that the majority of me painstakingly having to balance packages on my back as I travel a diverse world I would have just saved myself the money. World is beautiful and voice acting and cutscenes are good but that's about it.

Compute

Computation time on cpu: 0.055 s

NEU	0.677
POS	0.192
NEG	0.131

</> JSON Output

🔍 Maximize

Правильно.

3.1.2. MonkeyLearn

Test with your own text

If I knew coming into the game that the majority of me painstakingly having to balance packages on my back as I travel a diverse world I would have just saved myself the money. World is beautiful and voice acting and cutscenes are good but that's about it.

Classify Text

Results

TAG	CONFIDENCE
Negative	46.0%

Умовно правильно, оцінка «негативно» але впевненість лише 49%.

3.1.3. Stanza

```
> python lab5.py pos1.txt
```

```
Text -> 1
```

Оцінка 1 означає «нейтрально».

Правильно.

Оцінимо окремі речення:

```
> python lab5.py pos1.txt --split-sentences
```

```
Sentence #0 -> 0
```

```
Sentence #1 -> 2
```

В середньому нейтрально.

3.2. Рецензія від критика №1

70

USgamer

NOV 1, 2019

Death Stranding might be Kojima's boldest game to date. It may also be his most tedious. Either way, its originality outweighs its sometimes exhausting structure and poor pacing... but only just. Maybe not a game I would recommend to everyone, but certainly one of the most interesting games of 2019.

3.2.1. bertweet-base-sentiment-analysis

⚡ Inference API ⓘ

📄 Text Classification

Examples ▾

Death Stranding might be Kojima's boldest game to date. It may also be his most tedious. Either way, its originality outweighs its sometimes exhausting structure and poor pacing... but only just. Maybe not a game I would recommend to everyone, but certainly one of the most interesting games of 2019.

Compute

Computation time on cpu: 0.060 s

POS

0.975

NEU

0.023

NEG

0.002

</> JSON Output

🔍 Maximize

Неправильно, рецензія далеко не на 100% позитивна.

3.2.2. MonkeyLearn

Test with your own text	Results				
<div>Death Stranding might be Kojima's boldest game to date. It may also be his most tedious. Either way, its originality outweighs its sometimes exhausting structure and poor pacing... but only just. Maybe not a game I would recommend to everyone, but certainly one of the most interesting games of</div> <div>Classify Text</div>	<table><thead><tr><th>TAG</th><th>CONFIDENCE</th></tr></thead><tbody><tr><td>Positive</td><td>69.2%</td></tr></tbody></table>	TAG	CONFIDENCE	Positive	69.2%
TAG	CONFIDENCE				
Positive	69.2%				

Менш позитивна оцінка, ближче до правди.

3.2.3. Stanza

```
> python lab5.py meh2.txt
```

```
Text -> 2
```

Неправильно, хотілося би бачити оцінку 1 - «нейтрально».

Оцінимо окремі речення:

```
> python lab5.py meh2.txt --split-sentences
```

```
Sentence #0 -> 1
```

```
Sentence #1 -> 0
```

```
Sentence #2 -> 0
```

```
Sentence #3 -> 2
```

Окремі речення в середньому мають змішану оцінку.

3.3. Рецензія від критика №2

60

GameSpew

Critic Review

I have to give credit to Hideo Kojima for trying to make something different. For me it didn't pay off, but I did feel there were moments of brilliance here and there. Death Stranding is an ambitious game, but it's also one that's self-indulgent and overwrought. With better pacing and the excising of some of its less flattering content and features, Death Stranding could have been something special. As it is, however, it's just a slog that ultimately turns around and spits in your face.

3.3.1. bertweet-base-sentiment-analysis

⚡ Inference API ⓘ

Text Classification Examples ▾

I have to give credit to Hideo Kojima for trying to make something different. For me it didn't pay off, but I did feel there were moments of brilliance here and there. Death Stranding is an ambitious game, but it's also one that's self-indulgent and overwrought. With better pacing and the excising of some of its less flattering content and features, Death Stranding could have been something special. As it is, however, it's just a slog that ultimately turns around and spits in your face.

Compute

Computation time on cpu: 0.117 s

NEU	0.598
POS	0.317
NEG	0.084

</> JSON Output Maximize

Правильно.

3.3.2. MonkeyLearn

Test with your own text

I have to give credit to Hideo Kojima for trying to make something different. For me it didn't pay off, but I did feel there were moments of brilliance here and there. Death Stranding is an ambitious game, but it's also one that's self-indulgent and overwrought. With better pacing and the excising

Classify Text

Results

TAG	CONFIDENCE
Negative	48.6%

Умовно правильно, оцінка «негативно» але впевненість лише 49%.

3.3.3. Stanza

```
> python lab5.py meh2.txt
```

```
Text -> 0
```

Неправильно, хотілося би бачити оцінку 1 - «нейтрально».

Оцінимо окремі речення:

```
> python lab5.py meh2.txt --split-sentences
```

```
Sentence #0 -> 1
```

```
Sentence #1 -> 1
```

```
Sentence #2 -> 0
```

```
Sentence #3 -> 0
```

```
Sentence #4 -> 0
```

Окремі речення в середньому мають негативну оцінку.

Висновки.

Всі моделі здебільшого впорались з визначенням суто позитивних та суто негативних рецензій (окрім однієї помилки в моделі з Hugging Face).

Зі змішаними рецензіями складніше: здається, MonkeyLearn взагалі ніколи не видає «нейтральної» оцінки, але бачимо її впевненість в оцінюванні, і для нейтральних відгуків бачимо впевненість ~50/50. Модель з Hugging Face впоралася краще за модель Stanza, але все одно маємо помилки.

Цікаво розбити текст на речення за допомогою Stanza і оцінити їх окремо. Середня оцінка окремих речень не завжди дорівнює оцінці тексту взагалі.