

Clickbait classification problem with ChatGPT

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HSE University
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Eduard Ni
MDS-231

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1. Clickbait and non-clickbait

Let's elaborate more on some specific common features for clickbait and non-clickbait headlines. For clickbait:

- The headline promises amazing results, crazy secrets or shocking information;
- The title plays on the reader's emotions: fears, curiosity, admiration or another;
- Exclamations in the headlines;
- The urge to action;
- Promise to disclose some secret information.

For non-clickbait:

- Clear headline without secrets, containing brief information that will be in the text;
- Non-clickbait have no calls to action, it does not cause emotions just focusing on information and facts;

2. Task solution tries

Preparations

Labeled in [gpt-4 clickbait samples \(zero-shot\)](#) file gpt4o column has a 0.83 score by accuracy metric. Let us improve that.

To simplify, every classification request in one context to ChatGPT is called “**attempt**” in this file. All the readings data, scores computation have processed in Google Colab using sklearn and pandas libraries.

First attempt

Firstly, I asked ChatGPT to classify the clickbait in csv format with semicolon(';') as a delimiter by feeding the testset:

This is a clickbait data. Please classify it as 0 for non-clickbait and 1 for clickbait, respectively. Do not need generate code, just classify directly. Create it in CSV format with semicolon as delimiter. The results only are needed, no explanations required

<testset>

The **first attempt** resulted in a 0.9 accuracy score with 10 sentences which were classified as non-clickbait while they are clickbait. They can be found in the notebook “First attempt” block in the second section of the block.

Second attempt

In the **second** message clarifications with common features for clickbait and non-clickbait headlines from section “1. Clickbait and non-clickbait” were provided. Also I added as examples 20 randomly chosen clickbaits and non-clickbaits headlines from the [Clickbait Dataset](#) and requested to classify the testset one more time.

It gave me a 0.89 accuracy score with one more wrongly classified sentence.

Third attempt

In the third attempt was asked what are the difficulties to classify wrongly classified headlines in the previous request. I asked to generate a prompt by improving Interest and Curiosity Generation:

Let's make the prompt to improve classification for Interest and Curiosity Generation also using the provided before with some common features.

The following suggested prompt fed into ChatGPT (APPLICATION A), that gave me a better 0.92 accuracy score.

Fourth attempt

In the next attempt ChatGPT asked what are the difficulties with classification the previous headlines again and asked to generate a prompt by improving Lists and Specific Information:

relying on the context, Let's make the prompt to improve classification for Lists and Specific Information to improve your last prediction.

The prompt in APPLICATION B resulted in a 0.98 accuracy score, which looks quite good, but very strange to have such a big score.

Conclusion

We can see an accuracy growth in the third attempt. The Change correctly classified interrogative, some secrets revealing and some advertising headlines. Examples:

- Did You Prefer The Broadway Show Or The Movie
- This Web Series Is Helping Trans Teens Find Their Personal Definition Of Beauty
- Tell Us Why You Take Medication For Your Mental Health
- Chris Moyles Is Returning To Radio With A Breakfast Show On Radio X

In the fourth attempt GPT classified as non-clickbaits headlines:

- A Madoff Cookbook Has a Secret, Too
- Bigfoot' hunters claim to have found corpse of mythical creature in Georgia, USA

However they look like clickbaits. That is the problem with clickbait classification, that we do not have full text of work, as a person, I would classify these headlines as clickbaiting.

Also, in the fourth attempt GPT correctly coped with the numbers containing clickbait headlines as expected:

- 23 Made In America Clothing Brands You Should Know
- 41,000 Indians Have Petitioned The Censor Board For More Gender-Sensitive Ratings
- 18 Differences Between Snow Days In Canada And America

As it can be seen, the result was upgraded in accuracy score from the starting. However there are some problems in clickbait classification. I guess it is hard for a language model to classify whether the headline is informative or just a clickbait as the context of the current day is not known by the model. Also, there are problems dealing with emotions evoking headers. Not to mention the culturally specific themes which can be interesting and not clickbaiting.

Third attempt generated prompt

Please classify the following headlines as 0 for non-clickbait and 1 for clickbait, respectively. Use a CSV format with semicolon as the delimiter. Focus on the common features provided for both clickbait and non-clickbait headlines, especially those that generate interest and curiosity.

Clickbait (1) Common Features:

The headline promises amazing results, crazy secrets, or shocking information.

The title plays on the reader's emotions: fears, curiosity, admiration, or another.

Exclamations in the headlines.

The urge to action.

Promise to disclose some secret information.

Headlines crafted to spark curiosity and interest in a specific topic.

Target a specific audience or group, making the content feel personalized and relevant.

Emotional language or implications used to draw in readers.

Use of questions to engage readers and make them think.

Highlighting cultural, social, or current topics.

Casual or conversational tone to make headlines feel more approachable and engaging.

Non-clickbait (0) Common Features:

Clear headline without secrets, containing brief information that will be in the text.

Non-clickbait has no calls to action, it does not cause emotions, just focusing on information and facts.

Objective and factual, focusing on delivering straightforward information.

No use of questions or exclamations.

Neutral tone, avoiding overly emotional or sensational language.

headline

Chris Moyles Is Returning To Radio With A Breakfast Show On Radio X'

26 Gifts For People Who'd Rather Live Between The Pages Of A Book

23 Made In America Clothing Brands You Should Know

These Photos Make The 2016 BAFTAs Look Like The Golden Age Of Hollywood

25 Sunday Sport Headlines To Uplift And Inspire

11 Other 'Harry Potter' Names You've Been Pronouncing Wrong

30 Things Girls Who Are Always Cold Understand

OMG, Yes, You Can Totally Make Your Hair Glow-In-The-Dark Now

How Do You Stay Fit In College

Tell Us Why You Take Medication For Your Mental Health

This Web Series Is Helping Trans Teens Find Their Personal Definition Of Beauty

How Much Of A Stereotypical Person Are You

15 Sensational Ways To Eat Gnocchi This Winter

21 Things You Need If You Love Burgers Too Much

21 Wicked Ways To Trick People Into Eating The Best Candy Ever

Lego Is Now Making Extra-Padded Lego-Proof Slippers Because They Feel Your Pain

Can You Answer These Obscure 'Friends' Trivia Questions

18 Easy Ways to Become a Morning Runner Without Even Trying

44 Secret Sentences All College Students Will Understand

62 People Who Dressed As Matt Bellamy For Halloween

This Is The Hardest 'Degraasi' Quiz You'll Ever Take

The 19 Most Important Things That Happened At The 2016 Golden Globe Awards

This Is Why Men Can Never Find A Damn Thing

Which Hogwarts Houses Do These 'Doctor Who' Characters Belong In

Choose A Squiggle To Determine Your Current Frame Of Mind

This Korean Pop Star Can't Stop Falling On Stage During Her Performance

What Is Your Sex IQ

12 Presidential Candidates And Their Dog Twins

18 Celebrity Instagrams You Need To See This Week

26 Photos That Every Perfectionist Will Find Pleasing

Could You Actually Quit Facebook

31 Of The Funniest Moments To Ever Happen On 'Desperate Housewives'

What Historical Decade Actually Matches Your Style

41,000 Indians Have Petitioned The Censor Board For More Gender-Sensitive Ratings

David Bowie's Musical 'Lazarus' Showcases His Enduring Legacy

27 Sex Questions You're Too Afraid To Ask Anyone But Google

Can We Guess Your Personality Based On Your Underwear Color

Did You Prefer The Broadway Show Or The Movie

18 Differences Between Snow Days In Canada And America

15 Items Only Thirtysomethings Would Have In Their Amazon Shopping Cart

17 'Twilight Zone' Episodes To Watch If You've Never Seen 'The Twilight Zone'

Pocket Kittens Are Real And Here Is What You Should Know About Them

We Bet You Can't Name All 30 NHL Teams In 5 Minutes

29 Photos Guaranteed To Make 'Simpsons' Fans Laugh Every Time

23 Situations Everyone Who Grew Up Shy Will Understand

Can You Name These '90s Games From A Single Screenshot

These Horrifyingly Satisfying Photos Of 'Baby Foot' Will Haunt You

14 Things You Did To Look Cool As Teens That Aren't Cool Now

Can You And Your Family Finish This Freestyle Crossword

14 Graphs That Are Too Real For Any Student With Social Anxiety
 Australian Senator arrives at Parliament dressed as a beer bottle
 Have them all shot': BBC gets 21,000+ complaints over Jeremy Clarkson's public sector striker comments
 A Madoff Cookbook Has a Secret, Too
 6-year-old boy in Colorado found alive, unhurt after runaway balloon allegedly carried him away
 Bigfoot' hunters claim to have found corpse of mythical creature in Georgia, USA
 Chris Benoit mystery editor confesses: claims 'terrible coincidence'
 A Growth Area for Law Firms: Bankruptcy
 Michigan Holds Off Frantic Finish by Clemson
 Election complaint against Fred Thompson
 .tel top-level domain launched
 Official Myanmar death toll increases to 78,000
 Search underway after US B-52 bomber crashes off Guam's coast
 To Track Tigers, Software That Knows Them by Their Stripes
 US TV host Conan O'Brien rejects NBC's offer to switch his show's time slot
 McDonald's unfairly dismissed worker for giving a colleague free cheese, says Dutch court
 US Secret Service officer arrested during prostitution sting
 Bank Worries Keep Pulling Markets Back
 Cellphones as Credit Cards? Americans Must Wait
 Southern Gaza hit by new Israeli air strikes
 Rain Makes Dustin Johnson a Winner at Pebble Beach
 West Virginia governor names Carte Goodwin as new Senator
 Officials Still Arguing Over Leader for Somalia
 Heavy earthquake hits the Philippines
 On a Campus in Bulgaria, Every Reason for Optimism
 Iran Council Certifies Ahmadinejad Victory
 Blu-ray prevails in high definition disc war
 Sailors freed after being captured in Nigeria
 Officials report 29 rebels killed in Yemen after clashes
 Judge Ends Monitor of the Los Angeles Police
 Names of Australians killed in helicopter crash released
 A Mobster Trial, and a Flash of a Violent Past
 Cricket: India beat England in second one-day international
 California Warns of Layoffs at Schools
 Bristol campaigners: words by council are 'weasel words'
 Japanese probe snatches first asteroid sample
 UN: Ethiopian GDP grew only 1.7% in 2009, may not reach anti-poverty goals
 Technology giants battle for USB 3.0 standards
 Judge in Nebraska says thou shalt not sue God
 Nobel Peace Prize awarded to Kenyan environmental activist
 Evo Morales wins presidential elections in Bolivia
 BBC begins trial program allowing legal TV and radio downloads
 Two Palestinians reportedly shot dead by Israeli troops
 Fortieth anniversary of first manned Moon landing
 Chinese earthquake: Death toll reaches almost 15,000 as 'dangerous' cracks found in dam near city
 Cabrera, Once a Poor Caddie, Is Part of a Marquee Threesome
 Finnish female politicians highlighted by World Bank's 2012 gender report
 Three Yemeni troops killed in shooting
 Tensions rise between North Korea and United States
 Research in Motion to launch new tablet device
 Couples thrashed for sitting in a park in Meerut, India

Fourth attempt generated prompt

Classify the following headlines as 0 for non-clickbait and 1 for clickbait based on the features outlined above. Use a CSV format with semicolons as delimiters.

Enhanced Prompt for Clickbait and Non-Clickbait Classification

Common Features for Clickbait (1):

Lists and Specific Information: Headlines that include lists or numbers (e.g., "10 Best...", "5 Reasons...", "23 Things...") often promise comprehensive and easy-to-digest content, generating curiosity and interest.
Promises Amazing Results or Secrets: Headlines that suggest revealing secrets, amazing results, or shocking information.
Emotional Engagement: Titles that play on the reader's emotions such as fear, curiosity, admiration, etc.
Calls to Action: Phrases encouraging immediate action or engagement (e.g., "Find out now", "You won't believe...").
Questions: Use of questions to pique curiosity (e.g., "Can You Guess...?", "How Do You...?")
Highlighting Social, Cultural, or Current Topics: Headlines that engage with current events or social issues, promising detailed insights.
Casual or Conversational Tone: Making headlines feel approachable and engaging.
Common Features for Non-Clickbait (0):

Clear and Informative: Headlines that provide clear, brief information on the content without hidden details.
Factual and Objective: Focuses on delivering straightforward information, avoiding emotional or sensational language.
Neutral Tone: No use of questions, exclamations, or emotional engagement.

headline

Chris Moyles Is Returning To Radio With A Breakfast Show On Radio X'
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23 Made In America Clothing Brands You Should Know
These Photos Make The 2016 BAFTAs Look Like The Golden Age Of Hollywood
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 US Secret Service officer arrested during prostitution sting
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 Cellphones as Credit Cards? Americans Must Wait
 Southern Gaza hit by new Israeli air strikes
 Rain Makes Dustin Johnson a Winner at Pebble Beach
 West Virginia governor names Carte Goodwin as new Senator
 Officials Still Arguing Over Leader for Somalia
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 Finnish female politicians highlighted by World Bank's 2012 gender report
 Three Yemeni troops killed in shooting
 Tensions rise between North Korea and United States
 Research in Motion to launch new tablet device
 Couples thrashed for sitting in a park in Meerut, India

Confusion matrix visualization

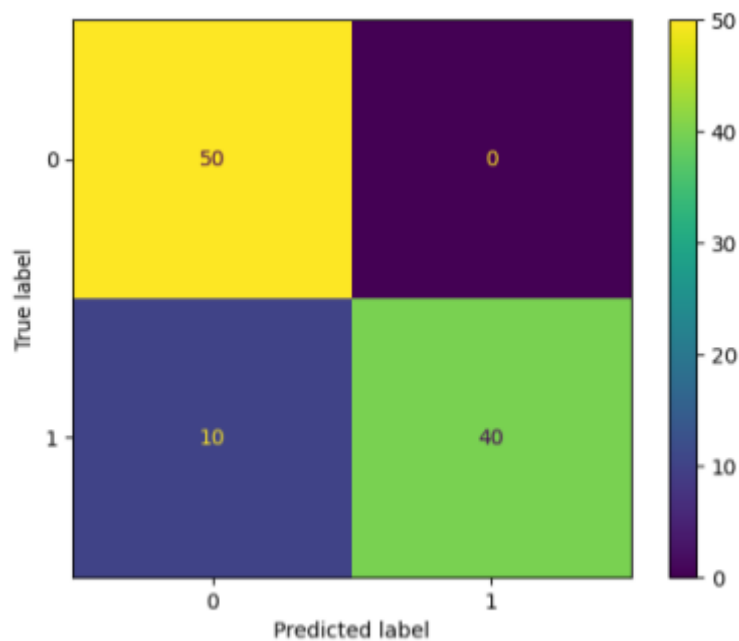


Figure 1 – First attempt Confusion Matrix

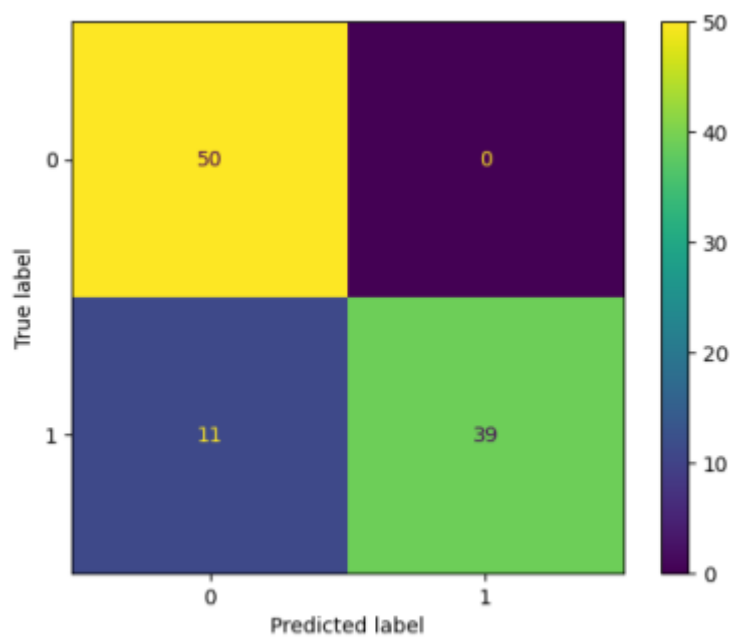


Figure 2 – Second attempt Confusion Matrix

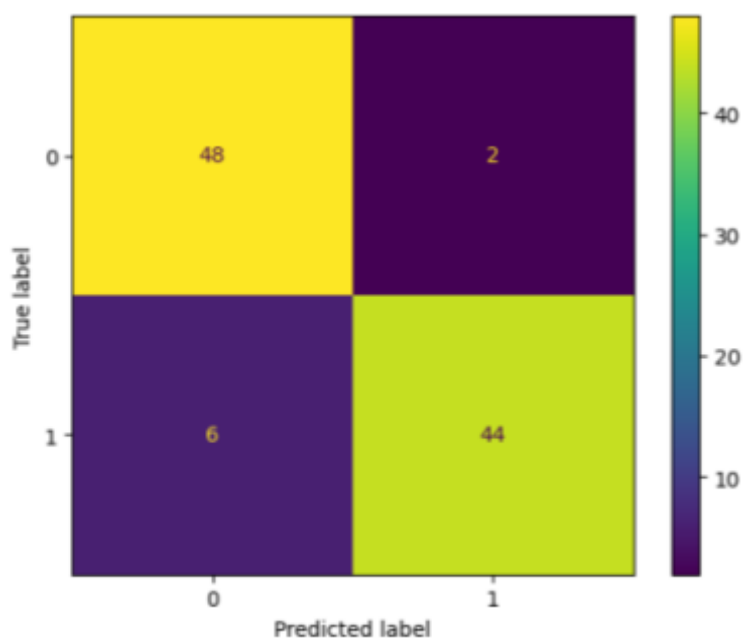


Figure 3 – Third attempt Confusion Matrix

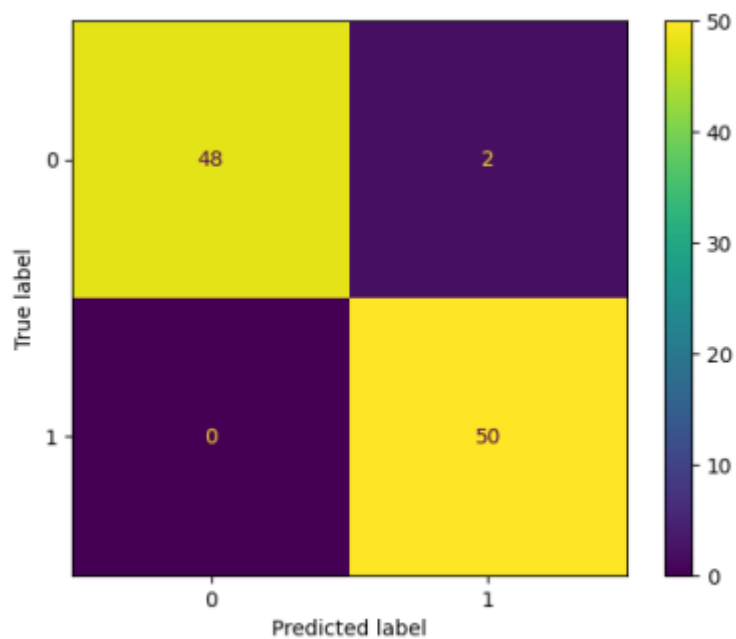


Figure 4 – Fourth attempt Confusion Matrix