Dataset

new_novel_need.xlsx

- Newly generated reviews with novel needs
- old_novel_need: old reviews with novel needs
- Prompt1, Prompt2: Generate_exp1
- generate_v1: Generate_exp2
- generate_v2: Generate_exp3

Generate_exp1

1. Generate new novel need

- Use Chatgpt to generate new novel needs with following prompt

```
1  Please provide 10 novel needs for computers in written form. A novel need is defined
   as the introduction of new terms, features, or the integration of functionalities
   from other products into computers.
```

2. Add noise to old reviews with novel needs

- Generate with two different prompts (Chatgpt)

```
1   Given some example data of reviews:
2   1. Thin bezels was an option that was great.
3   2. A lot of flashy annoying stickers on the chassis.
4   3. MSI's customer support is a joke too. I submitted several tickets with little to
    no effect.
5   4. I wish the fingerprint scanner were a tad bit more sensitive
6   5.(Beautiful): I love me some apple products! Absoutely beautiful gold. It's brand
    new, sealed. Came very quick and in perfect condition. Set up is quick, the Touch
    ID is super fast. My iPad Pro has the M1 and let's just say, it's a game changer.
    Highly recommend getting this.
7
8
9   # prompt1: Rewrite the following sentences into a review format without changing
    the meaning of the sentences:
10
11  # prompt2: Without changing the main meaning of the sentence, rewrite the following
    sentences into review forms by adding content, changing sentence structure, etc:
12
```

```
13
14   1. Integration of artificial intelligence (AI) to assist users in tasks such as
     organizing files, prioritizing emails, and suggesting optimized workflows for
     enhanced productivity.
15   2. Computers should feature AR displays, enabling users to overlay virtual elements
     onto the real world, enhancing productivity, gaming experiences, and visualizing
     data in new ways.
16   3. Computers should possess quantum computing capabilities, enabling them to solve
     complex problems exponentially faster, revolutionizing fields such as cryptography,
     optimization, and scientific simulations
17   4. Computers should seamlessly integrate with smart home devices, allowing users to
     control and monitor their connected appliances, lights, and security systems
     directly from their computers.
18   5. Computers should support wireless charging for peripherals and mobile devices,
     eliminating the need for cables and providing convenient power transfer.
19
```

- Examples

```
1    1. Integration of artificial intelligence (AI) to assist users in tasks such as
     organizing files, prioritizing emails, and suggesting optimized workflows for
     enhanced productivity.
2
3    prompt1:
4      I'm excited by the prospect of artificial intelligence (AI) integration in our
     computers. Imagine a computer that assists you in tasks such as organizing files,
     prioritizing emails, and suggesting optimized workflows for enhanced productivity.
     The potential for a boost in efficiency is truly remarkable.
5
6    prompt2:
7      The integration of AI in computers has truly revolutionized my workflow. It's as
     if I have a digital assistant right at my fingertips, helping me organize files,
     prioritize my emails, and even suggesting optimized workflows for increased
     productivity. This AI integration has made me more efficient and productive than
     ever.
8
9
10   2. Computers should feature AR displays, enabling users to overlay virtual elements
     onto the real world, enhancing productivity, gaming experiences, and visualizing
     data in new ways.
11
12   prompt1:
13   AR displays on computers would be a game changer. This would enable users to
     overlay virtual elements onto the real world, enhancing productivity, gaming
     experiences, and visualizing data in new ways. The ability to interact with data
     and digital objects in a physical space would take our computing experiences to the
     next level.
14
15   prompt2:
```

```
16   The introduction of AR displays in computing has opened up a whole new world for
     me. Now, I can overlay virtual elements onto the real world, enhancing not just my
     productivity but also my gaming experiences. Visualizing data has never been this
     interactive and intuitive. This is a game-changer in the field of computing!
17
18   3. It would be fantastic if the laptop has a projector.
19   prompt1:
20   A laptop equipped with a projector would be an incredible asset. This feature would
     transform the laptop into a mobile presentation tool, enhancing its versatility.
21
22   prompt2:
23   It would be absolutely fantastic if a laptop came with a built-in projector. This
     feature would allow for on-the-go presentations and could transform any space into
     a mini theater. It's a feature that I believe could revolutionize the way we view
     media and share content on our laptops.
```

Generate_exp2

- Generate new "novel needs" with the following prompt

```
1   You need to help me generate some reviews about computers. The content of these
    texts needs to look very real, be practical, and at the same time, imaginative. The
    overall text should include any content that might appear in real reviews, such as
    evaluations of the computer's existing functions, price, logistics and after-sales
    service, and expectations for the computer, expressing hopes for what the computer
    can do but is currently unable to do. The reviews can be positive, neutral or
    negative, but they must all contain imaginative new requirements.
2   Specific examples are as follows:
3
4   1. I think this computer is overall not bad, and the cooling is okay, but I hope it
    can add a voice assistant that can help me automatically find files and clean up
    junk, which would be more convenient.
5
6   2. The computer runs fast, but the cooling is lacking. It would be great if it could
    use a freeze-like technology to cool down in a second. And then there is the screen
    quality is not good, cracks appeared without much use.
7   Please generate 10 reviews that meet the above requirements.
8
9
```

- Generate more reviews with following prompts

```
1  Please provide an additional 10 review texts. They should feature a richer sentence
   structure, include more realistic appraisal content, and contain more imaginative
   new requirements within the content.
```

```
1  Please provide an additional 10 longer review texts. They should feature a richer
   sentence structure, include more realistic appraisal content, words expressing
   complaints and emotions, or meaningless content., and contain more imaginative new
   requirements within the content.
```

Example

```
1  1. I think this computer is overall not bad, and the cooling is okay, but I hope it
   can add a voice assistant that can help me automatically find files and clean up
   junk, which would be more convenient.
2  2. The computer runs fast, but the cooling is lacking. It would be great if it could
   use a freeze-like technology to cool down in a second. And then there is the screen
   quality is not good, cracks appeared without much use.
3  3. This computer has a great processing speed and the design is sleek, but the
   battery life leaves a lot to be desired. I hope in the future they could incorporate
   solar charging features so I could work all day without worrying about running out
   of power.
4  4. The graphics card on this machine is top-notch, excellent for gaming. However,
   the speakers could use a boost. It would be fantastic if they added surround sound
   capabilities, to immerse you in the gaming experience fully.
5  5. The precision of the touch screen on this computer is quite good, but I can't
   help but wish for a 3D holographic display that I could manipulate with hand
   gestures, like in those sci-fi movies.
6  6. I appreciate the high-quality audio of the speakers on this computer, but the
   lack of noise cancellation can be a downside during video calls. A futuristic
   feature would be an AI-powered noise cancellation system that can differentiate
   between voice and background noise.
```

Generate_exp3

- Generate long and short reviews with novel needs based on generate_exp2

1. Add noise to old reviews

- Generate with following prompt using Chatgpt

```
1  Your task is to add noise to comments with new requirements. "New requirements"
   refer to features that computers currently do not have, while "noise" refers to
   any content that might appear in computer product reviews on e-commerce
   platforms.
```

Here are a few regular long comments:

1. This is a good PC for the money. I am predominantly using it for graphic design, and it allows me to use multiple applications at once with no lag. It is additionally good for gaming, as well as business use (it is my business laptop as well). Though built for gamers, this is an all around well made machine. Best part of the PC is it is FAST.I will note the fan is a little loud, but that isn't a surprise based on other reviews. Also, the battery life isn't great, but i keep it plugged in most of the time. Screen resolution and quality is good, though nothing to brag about compared to other laptops in the market today. Using multiple monitors it doesn't bother me much.I would recommend this computer as one of the best bang-for-your-buck purchases you can get in the market today.

2. Bought one and 4 days after receiving it, it looked like first 2 pics upon booting. Replaced it and the last 2 pics are what the replacement looked like after a few days as well. It would not happen every time, but it would have that white line around the edge for maybe 30 min and would fade back to normal. More recently, the replacement won't turn on immediately after hitting power button. The screen stays black and no response for 15 minutes or so. I wanted to give it one more chance, because I haven't read about this happening to anyone else and I received these two laptops right before Amazon went out of stock, so I thought maybe I just got bad ones at the end but, unfortunately, Amazon can only provide a refund and are still out of stock.

3. After sending back my other computer (an Acer) I paid the extra 100$ and got this guy for gaming. After 30 minutes of updates....It blew my mind how awesome this machine is. The keyboard lighting is fully customizable. It has overclock setting built in so you do not have to crash your computer a bunch of times to get it right. I play all my games on Ultra and it is 100fps+. I am so glad I went with the Predator and will be staying with this from now on. Also, I will be installing a 1tb SSD in the empty slot to add more space. Can't say enough good things about how light, stylish and out of the box ready for gaming it is!

4. I use an XPS 17 as my workstation. For going places though, this super small laptop can do everything I need. It has 2 Thunderbolt 4 ports (USB C) and a micro-SD card reader. I use the reader with a 1TB micro-SD to store all my reference files. This makes the 512GB SSD more than adequate. My XPS 13 has 16GB ram which is more than enough for the purposes for which I use this machine. My only wish is if one had a 5G option so I would have to use a Hot Spot connection. The 1920x1200 display resolution is perfect. The XPS 13 is too small to really use 4K properly and battery life on 4K laptops is significantly less than these HD+ machines.

Expand the following comments with new requirements to over 300 words, but the content must retain the new requirements:

```
15    The keyboard comes with customizable backlighting and macros, letting you
      tailor your typing experience to your preferences and needs, in line with the
      2018 standard for keyboards.
```

2. Translate reviews from JD

1. Find reviews in Chinese from JD

2. Mannually add novel needs to reviews

3. Translate to English

```
1   系统软件有问题，采用微软赠送用密钥激活是，无法正常显示密钥输入况（局部黑屏），根本连输入密钥的
    机会都没有。后来改用邮箱验证码激活，到时发送了4位验证码，但是输入验证码厚的界面，又是局部白
    显，一直无法正常进入下一步，假死状态。外观设计和工艺还可以，看起来挺靓，就这吸引了我。系统运行
    没有预想的快，感觉13代I7的CPU名不副实。最满意的就是续航了，这也是我又买个笔记本的原因，第一次
    充满两小时只用了8%的电，换之前的那个80%也得多。外观也不错，简约但不平庸，重量厚度也可。散热比
    较一般，刚开始安装软件发热，空调房，风扇侧热风呼呼的，键盘某些位置较热。不过打个代码还好，风扇
    几乎不转，发热也不高。键盘能不能考虑加个个性化背光灯和宏控制键，能根据个人需要和喜好自定义就好
    了。硬盘较为一般，pcie3.0的水平，单硬盘位，内存应该也板载。并且在测硬盘时有尖锐的声音，但之后
    没出现过。
2   总体上还算满意。
3
4   宝贝收到了，真的很棒呀！质量真是没话说，满意！物流速度真的是没话说，我6月17号下单，第二天就到
    了，就是一个字：快。电脑本身经过我一个多月的测试，屏幕与转轴无问题，屏幕色彩清晰，屏幕无坏点，
    键盘与触控板无问题。配置也足够。基本办公需求，偶尔打下游戏 实测骑马砍杀2可以开千人战场。
5   但风扇确实响，转起来噪声很大。另外就是按键太棉，不符合个人喜好。C盘200G,D盘240G,运行内存
    16G,，CPU运行速度符合描述。只是快递员让自提，快递包装表面脏污，有水泡的痕迹?特别提一点，键盘
    触控板能不能加个边缘检测，可以识别是不是误触，不然太灵敏了，不过总体表现满意。
6
7   品控问题很大，底座不平，就像个电报机，而且电扇太吵太吵了！！能不能加一个完全0噪声的电扇，我需
    要无声工作环境？此外吐槽下第一次申请售后，工程师在电话中告知未删除密码，需要退回操作，等机器返
    回后删除密码，我再次申请，售后以检测无故障为理由拒绝售后审核，并且不断让我补充信息，我打了很多
    次客服电话申请，最后是客服看不下去了才给的二次返回去，这次售后再次给出无故障的检测，并且原返，
    在线客服告诉去线下自己检测，消费者真是弱势群体啊，这么明显的质量问题难道他们看不见吗？我今天就
    在这里给各位提个醒，谨慎购买！他们只会来回推诿扯皮！这种问题大家看看视频就能判定的，为什么要不
    断检测呢？没办法，这条视频我只能放在这里了，而且我会维权到底，我就不信了，我还找不到说理的地方
    了吗！
8
9   质感非常的不错。全金属CNC.给人一种高级感，在高铁上办公也不失风采，这键盘手感有改观，反馈力度不
    错，打字得心应手！再配上处理器的性能，屏幕的观感，是创造生产力的贤内助，屏幕颗粒感肉眼看比我之
    前的Acer好的多，LCD的屏幕不那么晃眼，个人认为电脑屏幕还是LCD的要好一些，三档刷新率60hz，
    90hz，120hz任意切换（fn+K键），插电就高刷，出差有续航焦虑就60。强烈建议可以整个裸眼3D，提高
    沉浸感。特别是语音助手给人焕然一新的感觉，问个天气，问个问题，马上就告诉你答案，非常好。处理器
    的调度也比较开放，秒杀独立显卡不是问题。最后希望做得越来越好，创造出更多令人感动的科技产品。
10
```

11　家里的老本坏了，单位两个同事都是用的这款笔记本，最长的一位用了大半年了，两位都说这款用着非常好用，配置高，性价比高，运行也快，都极力推荐这款，所以也入手了这款。入手后也果然没让我失望，全金属外壳，外观时尚，运行很快，开机也非常快，感觉不到十秒就完成了，送的office也正是需要的，很赞！作为一个区块链技术的工作者，希望可以集成个分布式电脑，然后用中枢电脑快速安全地处理保存数据。最后来说说客服，非常专业有耐心，有问题自己解决不了，客服不厌其烦一条一条回复，一点一点教，非常好

12

13　买的新电脑，结果收到货变形弯曲，用个类似钻石材质的三防材料做电脑不行吗？这样别说掰弯了，上天入水都不在话下。弯了之后就申请换货，结果售后人员用手掰了下就给我寄回来了，就算掰，也得让我同意吧？没经过我的同意就这样处理是不是不合理？再说了这是收到货就这样，凭什么让消费者买单？售后就是在踢皮球，他让我找他，他在让我找其他人，都啥玩意，广告做那么好干嘛？还 180 天只换不修，做不到就别吹牛。刚买的就不给我换新的，还放屁 180 天只换不修，忽悠你大爷呢？完文字游戏有事意思？系统有问题才给换，外壳不给换，，做不到就别吹牛，什么玩意……我现在主板被他们售后掰坏了，也不给我换，不许系统问题才行。……＊＊……

14

15　整体来说还是比较满意的，玩游戏开增强模式后，风扇拉满声音比较大，但CPU温度缺还是很高，这点不是很满意，也许是因为夏天太热了吧。充电速度较慢，能否同时支持两个插口充电，将充电速度提高一倍。感觉512不够用，自己加了个1t的三星990Pro。其它像运行速度，颜值，重量都是在线的，符合我买天选颜值高，配置好，重量较轻的初心，2.5k+165hz+100%DCI-P3还是很爽的

16

17　昨天晚上下单，今天上午就收到了，送货速度很快。给物流赞一个，这台电脑是战66，英特尔13代酷睿处理器，16G内存，512G硬盘。 我试了一下，速度还是很快的。这是轻薄本，并不沉，手感也挺好的。惠普的做工一直很优秀，这也是我选择这台电脑的原因。这是家里用的第三台惠普电脑了，以后还会再选择惠普电脑！提个建议，啥时候能搞个全折叠的电脑，屏幕键盘都能折叠放口袋，那就更轻薄了

18

19　根本不好用　嗡嗡响声音特别大　而且客服服务也不好　而且我还没咋用　右边键盘用不了　面部识别也根本用不了　从拿上电脑指纹识别就用不了　客服就说只是个设计　我是来买你的设计还是性能的　我都服了　难用死了　而且问什么客服也不理　买完就降价　还有充电也太麻烦了　电脑上不能搞个无线充电吗　电源线搞得老长占地方　说实话　有这个钱还不如去买其他品牌的　我怀疑好评都是刷出来的吧　钱都用来买水军和营销号了吧　性能一点都不好用　垃圾玩意

20

21　说实话比较一般，除了外观好看一无是处，运行速度一般没有之前的电脑好用，我给了智商税了，我是真后悔。运行速度非常一般，开大的excel，word容易卡死。屏幕效果倒是一流的，没人能打了。但是没经验的完全不会用，系统和windows差太多了。能不能搞个智能助理，一对一教学，哪里不会用，就自动打开提示之类的。不然太难学了。键盘手感超棒，而且触控板也好用到飞起。当然系统没有各种垃圾广告，可以给它好评，实在受不了被弹窗支配的windows了。做工是真心一流的，手感也还行，但是我这款就是有点重，携带上还是不够便捷。物流服务满分。昨天订的，两三天就送到了，还是那么远寄过来的。当然特别感谢快递员，快递员冒雨送过来，辛苦啦。客服态度也挺好的，值！以后有需要还会来买

Examples(long reviews)

1 It's not good at all. The buzzing sound is particularly loud and the customer service is not good. I haven't used it much and the right side of the keyboard can't be used. Facial recognition also can't be used. From the time I got the computer, fingerprint recognition couldn't be used. The customer service just said it's just a design. Am I buying your design or performance? I can't stand it. It's difficult to use. And customer service doesn't care about anything. After buying it, the price dropped. Also, charging is too troublesome. **Can't a wireless charger be added to the computer?** The power cord is too long and takes up space. To tell the truth, with this money, I might as well buy other brands. I suspect that the good reviews are all brushed out, right? The money is used to buy the water army and marketing number, right? The performance is not good to use, it's rubbish.

2

3 To be honest, it's quite ordinary. Except for the good appearance, there's nothing else, the running speed is ordinary and not as good as the previous computer, I have paid the IQ tax, I truly regret it. The running speed is very ordinary, it's easy to freeze when opening large Excel or Word files. The screen effect is first-class, no one can beat it. But if you don't have experience, you will not know how to use it, the system is too different from Windows. **Could you have an intelligent assistant for one-to-one teaching, where you don't know how to use it, just automatically open the prompt and such.** Otherwise, it's too hard to learn. The keyboard feels super good, and the touchpad is also incredibly good. Of course, the system doesn't have various junk advertisements, it can be praised for that, I really can't stand the Windows dominated by pop-up windows anymore. The craftsmanship is truly top-notch, the feel is also okay, but my model is a bit heavy, it's not convenient enough to carry. Logistics service gets full marks. Ordered yesterday, it was delivered in two or three days,

4

5   This computer really took my attention due to the intricate detailing it allows with the keyboard, something that you don't often find in your typical machines. The keyboard is equipped with fully customizable backlighting and macros, which isn't just a perk but seems to be more of a necessity with the shift towards more personalized technology experiences. These innovative features on the keyboard allow you to tailor your typing experience according to your unique preferences and needs. And it's not just about how it illuminates the keys in a dazzling array of colors for aesthetic purposes or to type in the dark. The customizability goes way beyond that, giving users the chance to truly make their computing experience their own. Each key can be individually programmed to perform specific functions, whether it's launching a particular application, executing a series of commands, or just typing out a frequently used phrase. This feature is indeed in line with the 2018 standard for keyboards but goes well beyond just ticking a box. Imagine, being a graphic designer, where you frequently use a combination of keys to perform certain tasks in design software. With this keyboard, you can set those combinations as macros. All those tasks can be performed with a single keystroke, enhancing your productivity by leaps and bounds. Gamers, too, would find this feature to be an absolute game-changer as it would allow them to program complex in-game maneuvers to individual keys, offering them a significant advantage during gameplay. **Additionally, in the future, I would love to see keyboards that are equipped with touch-sensitive keys, adding a whole new layer of interactivity and functionality.** For instance, the pressure applied to a key could determine the speed of an on-screen character in a game or the thickness of a line in a graphic design tool. A built-in haptic feedback feature would be fantastic too, providing real-time tactile responses to our keystrokes, enhancing the typing experience even further. Although this keyboard is indeed a considerable step up from what we are used to, there's always room for growth, and I am excited about the possibilities for the future.

6

7   The old laptop at home broke down. Two colleagues at work use this laptop, the one who has been using it for the longest has been using it for over half a year. Both said that it's very good to use, high configuration, high cost performance, fast operation, and highly recommended this model. So, I also bought this model. After buying it, it didn't disappoint me. Full metal shell, fashionable appearance, fast operation, very fast boot up, it feels like it completes in less than ten seconds, the Office it comes with is just what I need, great! As a blockchain technology worker, **I hope it can integrate a distributed computer and then use the central computer to quickly and securely process and save data.** Finally, talking about customer service, very professional and patient. If you can't solve a problem, the customer service patiently replies one by one, teaches bit by bit, very good.

Length statistic

Negative samples

```
count     13317.000000
mean        322.595930
std         559.355036
min           1.000000
25%          61.000000
50%         142.000000
75%         355.000000
max        9708.000000
```

Positive samples (before generation)

```
count        80.00000
mean        284.11250
std          67.42403
min         166.00000
25%         235.50000
50%         283.50000
75%         323.00000
max         510.00000
```

Positive samples (after generation)

```
count        98.000000
mean        380.377551
std         343.351958
min          52.000000
25%         222.000000
50%         293.500000
75%         337.000000
max        2201.000000
```

###

Experiment

1. Bert

Bert-exp1

- Using 'Prompt1'(label=1) + other reviews(label=0)

Script

```
1  python run_glue_no_trainer_v2.py \
2    --model_name_or_path bert-base-uncased \
3    --per_device_train_batch_size 32 \
4    --learning_rate 2e-5 \
5    --num_train_epochs 3 \
6    --output_dir tmp \
7    --train_file data/novel_train_prompt1.csv \
8    --test_file data/novel_valid_prompt1.csv
```

Data

train:

- 1: 63
- 0: 13430

test:

- 1: 24
- 0: 3306

Result

- pre: 0.8846
- rec: 0.9583
- f1: 0.9199

	Predict=1	Predict=0
Label=1	23	1
Label=0	3	3303

Top K

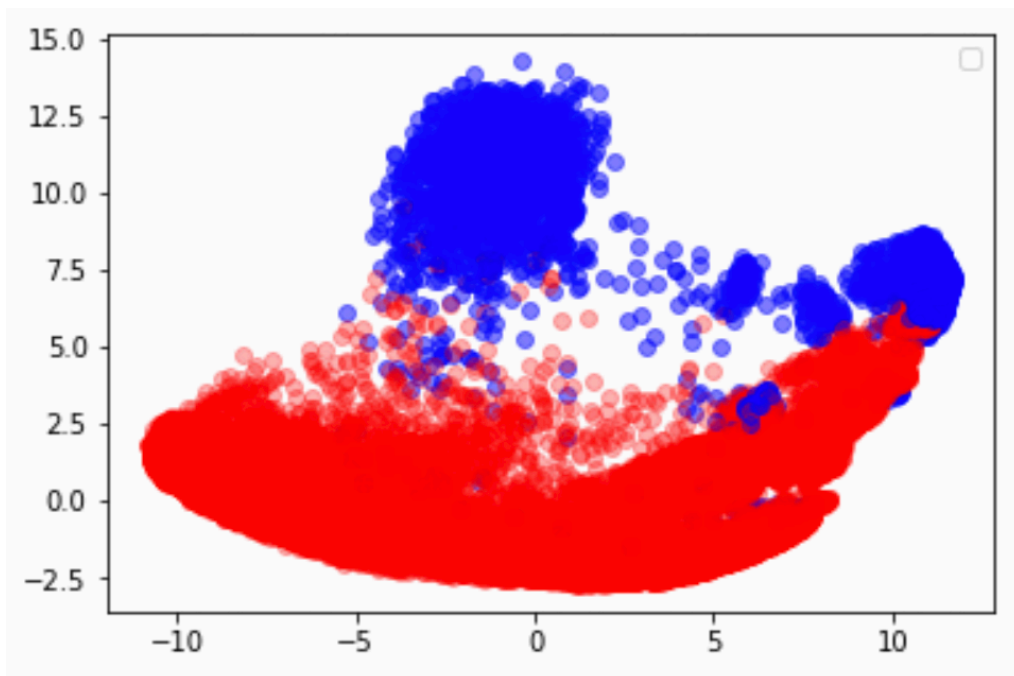|	Precision	Recall	F1
Top 5	1	0.2083	0.3445
Top 10	1	0.4167	0.5882
Top 15	1	0.625	0.7692
Top 24(#true label=1)	0.9167	0.9167	0.9167

Visualization

Blue: 1

Red: 0

- Using vanilla bert
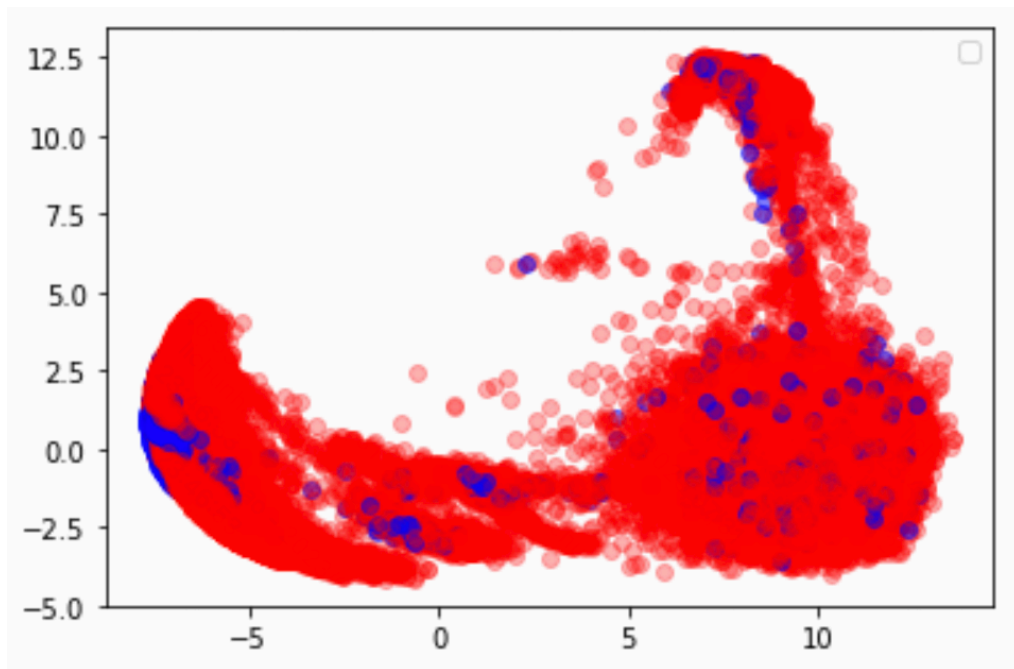
- Using fine-tuned bert

Bert-exp2

- Using 'generate_v2' + negative examples

Script

```
1    python run_glue_no_trainer_v1.py \
2    --model_name_or_path bert-base-uncased \
3    --per_device_train_batch_size 32 \
4    --learning_rate 2e-5 \
5    --num_train_epochs 3 \
6    --output_dir tmp \
7    --train_file data/novel_train_generate_v2.csv \
8    --validation_file data/novel_valid_generate_v2.csv
```

Data

Length statistic(All)

- Label=1

```
    count       98.000000
    mean       380.377551
    std        343.351958
    min         52.000000
  ○ 25%        222.000000
    50%        293.500000
    75%        337.000000
    max       2201.000000
    Name: len, dtype: float64
```

- Label=0

```
    count    13317.000000
    mean       322.595930
    std        559.355036
    min          1.000000
  ○ 25%        61.000000
    50%        142.000000
    75%        355.000000
    max       9708.000000
    Name: len, dtype: float64
```

Split data:

- **train:**
  - 1: 78
  - 0: 13,255
- **Test**:
  - 1: 20
  - 0: 3314

Result

- pre: 1
- rec: 0.9
- f1: 0.9474

	Predict=1	Predict=0
Label=1	18	2
Label=0	0	3314

Top K

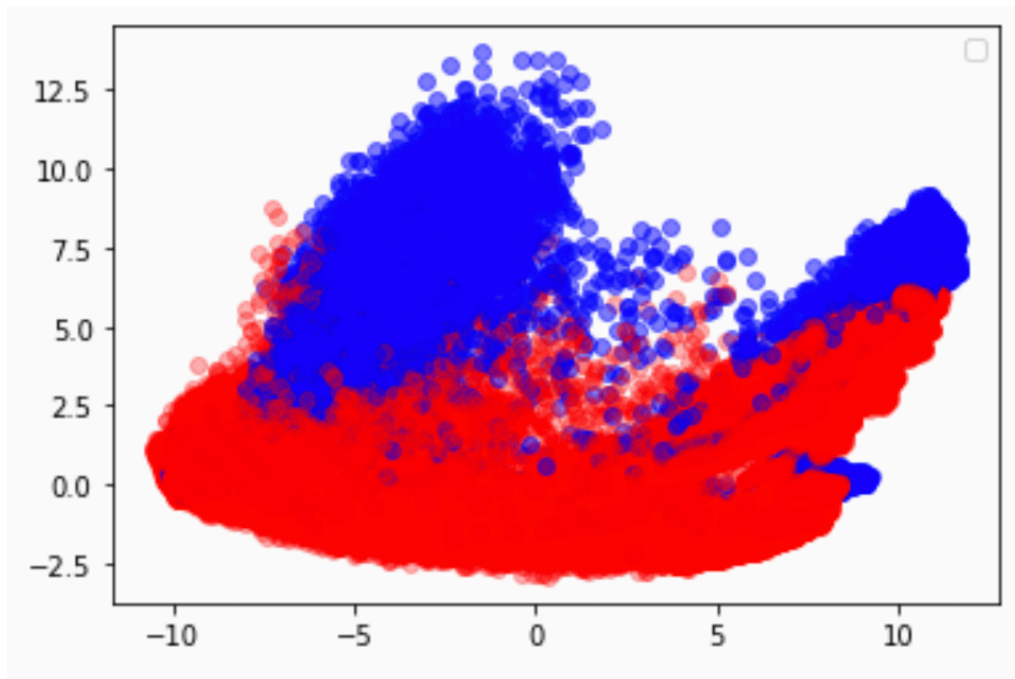|	Precision(tp/k)	Recall(tp/20)	F1
Top 5	1	0.25	0.4
Top 10	1	0.5	0.67
Top 15	1	0.75	0.8571
Top #(true label=1)	0.9	0.9	0.9

Visualization

Blue: 1

Red: 0

- Using vanilla bert
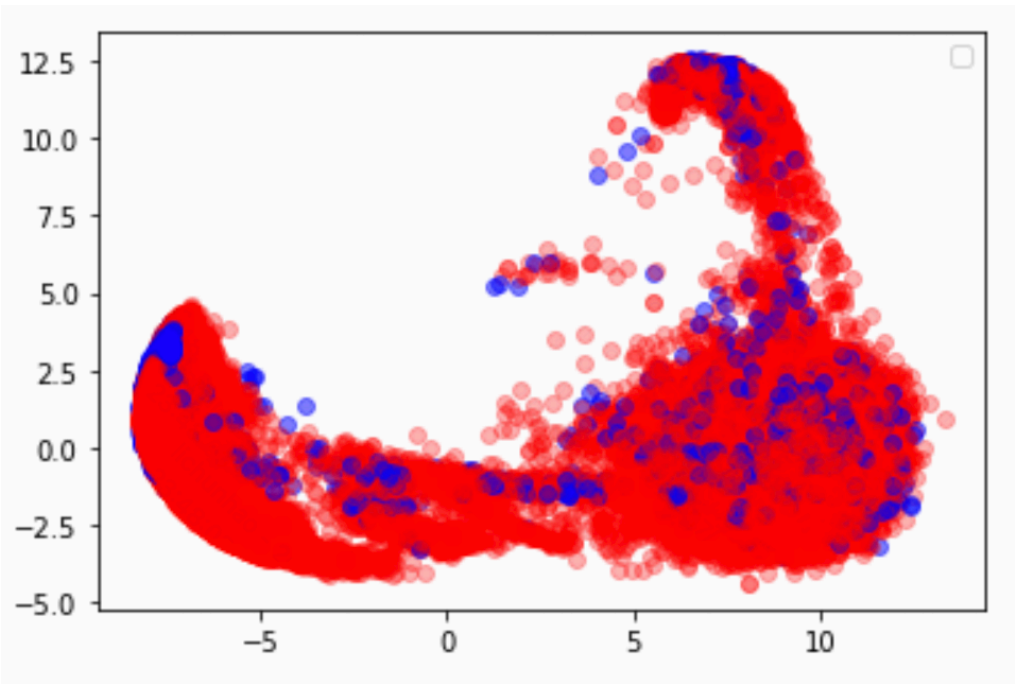
- Using fine-tuned bert

2. LLM

1. Instruction tuning with chatglm-6B and chatgpt

Model

- ChatGLM-6B
  - https://github.com/THUDM/ChatGLM-6B
- Chatgpt: https://chat.openai.com/

Prompt

```
 1  Given a computer purchase review data from an e-commerce platform, determine whether
    the review data contains new requirements. New requirements indicate features that
    the computer does not currently have. Return 1 (contains new requirements) or 0
    (does not contain new requirements).
 2  Here are some examples:
 3
 4  The computer runs fast, but the cooling is lacking. It would be great if it could
    use a freeze-like technology to cool down in a second. And then there is the screen
    quality is not good, cracks appeared without much use.  1
 5  This computer has a great processing speed and the design is sleek, but the battery
    life leaves a lot to be desired. I hope in the future they could incorporate solar
    charging features so I could work all day without worrying about running out of
    power. 1
 6  The laptop is a great choice for people who want a portable gaming experience,
    though there are a few problems. First, the laptop will get loud/hot very fast on
    newer games unless you lower the quality a lot. Second, the touchpad is sensitive
    and you'll find yourself accidently clicking things from time to time. Third, the
    people who shipped my laptop didn't have a sticker on the package warning about the
    lithium batteries as well as didn't even put any bubble wrap to keep the laptop
    safe. Finally, the battery life only last a few hours so you'll have to charge
    regularly. Other than that, the laptop works great and can play any game I throw at
    it. I would recommend it to anyone who wants an affordable gaming experience  0
 7  i had to buy this for school but honestly the m1 is a better value, especially
    refurbished or used. if all you'll be doing is schoolwork, youtube, spotify and
    mail, this laptop does not feel worth 1000 bucks. i'm too lazy to return it at this
    point but if i could pick again i would've bought the cheaper m1 macbooks. 0
 8
 9  Given the following reviews, please return the judgement result:
```

case study (reviews with novel needs)

- I adore the fast boot time on this machine, but the customer service was underwhelming when I had an issue. If only the computer could have a built-in diagnostic tool that could troubleshoot and fix problems automatically!

    - **chatgpt** Return: "1"
    - **chatglm-6b** Return: "Based on the given reviews, the review data does not contain new requirements. The computer currently has fast boot time and customer service is mentioned as good. The only new requirement mentioned in the review is the desire for a built-in diagnostic tool."

- The display on this computer is stunning, but the touchpad feels a bit outdated. I'd love it if they could integrate gesture recognition technology for a seamless and intuitive navigation experience.

    - **chatgpt** Return: "1"
    - **chatglm-6b** Return: "Based on the given reviews, the review data contains new requirements. The reviewer mentions the desire for gesture recognition technology in the touchpad, which is a feature that is not currently available on the computer."

- I'm impressed with the durability of this computer, but the noise of the fan can be a bit distracting. I wish they would invent a silent cooling system that could keep the computer cool without a sound.

- - **chatgpt** Return: "1"
  - **chatglm-6b** Return: "Based on the given reviews, the review data does not contain new requirements. The computer already has a silent cooling system, but the reviewer is wishes it had a silent cooling system that could keep the computer cool without a sound."
- The keyboard layout of this computer is pretty intuitive, but the lack of backlighting makes it hard to use in dimly lit conditions. A feature I would love to see is smart keyboard lighting that adjusts based on the room's light conditions.
  - **chatgpt** Return: "1"
  - **chatglm-6b** Return: "1. Yes, the review data contains new requirements for the computer's keyboard lighting feature."
- This computer's large storage capacity and fast read-write speeds are truly commendable, making file transfers a breeze. Unfortunately, the sound system does not match up. The speakers are tinny and lack depth. If they were to introduce a feature that creates a virtual surround sound experience, it would be a massive leap forward in enhancing multimedia consumption.
  - **chatgpt** Return "1"
  - **chatglm-6b** Return: "1 (contains new requirements)"

case study (reviews without novel needs)

- I love my Acer Chromebook. I bought it for online college and gaming. The color is so vivid and perfect; the picture crystal clear and the sound is Dolby Sound. I am extremely happy with this product and the cost was only $229.00.
  - **chatgpt** Return: "0"
  - **chatglm-6b** Return: "1. Yes, the review data contains new requirements. The reviewer mentions the lack of cooling and the potential for loud/hot operation, which are features that are not currently available on the Acer Chromebook."
- Absolutely amazing laptop! Runs games with zero lag. I was lucky to get it for $579, and would recommend checking this frequently as it goes super fast at that price.
  - **chatgpt** Return: "0"
  - **chatglm-6b** Return: "1. New requirements: The review mentions a lack of cooling and the use of a freeze-like technology, which suggests that the computer may not be designed to handle high-demanding games. These features are not currently available on the laptop."
- Simple, this laptop is great for the value. (1,399 plus I had the option to pay in 5 installments was a huge deal maker!!!) This would be my second MSI laptop in 5 years (my other one still works perfect I just wanted better specs)Good specs 10th gen i7 with RTX 2070. The SSD is super fast. I also added a 2.5" Samsung evo 1TB SSD on the SATA drive (highly recommend for more storage).Stays cool enough that I can play for hours (around 80/81 degrees). and that is without using the cool boost. (I never even turn that thing on)The only thing I will complain, but its not a big deal is the screen can be better (IPS 3ms, 144hz) and the speakers are not the best honestly I think these are the worst speaker I have ever heard. But on the other side I never need them anyways since I use a headset so not a big deal. What you are paying for this awesome powerhouse speakers should not be a deal breaker.The construction is hard plastic, but it does feel of good quality (I come from a raider series with aluminum construction). It is also not very heavy, coming in at 15" screen it is really easy to move around and take anywhere. Battery life is about 2 hours (it does have a big graphics card and rgb lighting, sooooo its going to eat it up fast) overall I would recommend this laptop for any amateur gamer or even for work that requires graphics and a lot of processing.

- **chatgpt** Return: "1"

- **chatglm-6b** Return: "Based on the reviews provided, the review data contains new requirements. The reviewer mentions the need for a more efficient cooling system and the improvement of the screen quality, which are features that the current laptop does not have. Additionally, the reviewer mentions the need for a larger storage capacity and the improvement of the speaker quality, which are features that the current laptop does not have. These new requirements indicate that the computer does not currently have these features, and the reviewer would like to see them added.

  Therefore, the judgement result is 1."

- Parents bought this for my sister and this is perfect for her to start on it's good for light-medium gaming. With school converting to online it's perfect as well. This computer also has good battery life away from the charger while might use with heavy use not so much it's good though. Overall the computer is good for it's current price and an amazing deal.

  - **chatgpt** Return: "0"
  - **chatglm-6b** Return: "Based on the given reviews, the computer does not contain new requirements."

- as much as I like this laptop at one point I started getting bluescreens telling me something was wrong with it. I resolved the issue but it caused many problems during my homework.

  - **chatgpt** Return: "1"
  - **chatglm-6b** Return: "Based on the review, it does not contain new requirements. The reviewer is discussing a problem with the laptop and its potential impact on their work, but it does not indicate that the computer does not currently have the features that the reviewer is looking for."

2. Instruction tuning with gpt3.5-turbo(api)

Dataset

- From test data in Bert-exp2

Test

- 1: 20
- 0: 100 (sample)

api-Exp1

Prompt

```
1  prompt = '''Given a computer purchase review data from an e-commerce platform,
   determine whether the review data contains new requirements. New requirements
   indicate features that the computer does not currently have. Return 1 (contains new
   requirements) or 0 (does not contain new requirements).
2  Here are two examples:
3
4  The pre-installed software on this computer is helpful, but the bloatware is a
   nuisance. An innovative idea would be an intelligent software manager that can
   automatically detect and uninstall unwanted programs.-->1
5  I am bringing my review down to 3 stars for now as I had to just send the computer
   back to the manufacturer because it wouldn't turn on. I have had the computer less
   than 2 months and already an issue. Before this happened I did like the computer and
   loved how fast it loaded and operated as just a basic model laptop. However, not
   even 2 months later it wont turn on and I had to pay to ship to the manufacture to
   see what the issue is.I bought this as a replacement to the laptop that I had. The
   one I had was extremely slow and would have an error and restart on its own every
   once in awhile. This Chromebook is a 1000x faster than the old laptop. It's great
   for just a computer to have access to the internet. If you don't need much out of a
   laptop then this one is great, has a couple USB ports and an HDMI port as well as
   blue tooth ability. I also like how the screen is less reflective so it has less
   glare. Overall, great product for the short time I have had it!-->0
6
7  Given the following review, please return the judgement result:'''
```

Result

- Pre: 0.303
- Rec: 1
- F1: 0.4651

	Predict=1	Predict=0
Label=1	20	0
Label=0	46	51

3 reviews cannot be determined (True label is 0)

False Positive

- Label=0 and Predict=1

> 1 | What can I say, the laptop is amazing, the screen is 99% RGB, the CPU Ryzen R7 5800h is a monster, the rtx 3050ti with just 4gb of vram is a horrible thing, but still you can't even build a desktop more powerful than this thing for $999, I added 16gb extra ram to a total of 24gb and also a 1tb SSD to a total of 1.5tb SSD this laptop is great for games like red dead redemption 2, GTA v, Doom eternal, but the best thing for me is video editing, it's like 3x faster than my i7 7700k, but this thing is a laptop! You can manually set the tdp limits to make it run really cool and silent when you need it, or Max fans and Max power when you just want UNLIMITED POWAAAAA! 8 cores 16 threads @4.4ghz on a laptop was beyond dreaming just 3 years ago, I really love AMD, the rtx is severely castrated with those 4gb vram but still with dlss and fsr I'm sure it will handle anything for at least 5 years to come

> 1 | I am used to a window program... so at first I was uncomfortable with the chromebook. It has basic uses but it is very efficient and serves my work needs. I do not yet regret it.

> 1 | it is so much lighter and more portable

api-Exp2

- Add more examples in the prompt

Prompt

```
1   Given a computer purchase review data from an e-commerce platform, determine
    whether the review data contains new requirements. New requirements indicate
    features that the computer does not currently have. Return 1 (contains new
    requirements) or 0 (does not contain new requirements).
2   Here are few examples:
3
4   The pre-installed software on this computer is helpful, but the bloatware is a
    nuisance. An innovative idea would be an intelligent software manager that can
    automatically detect and uninstall unwanted programs.-->1
5   I am bringing my review down to 3 stars for now as I had to just send the computer
    back to the manufacturer because it wouldn't turn on. I have had the computer less
    than 2 months and already an issue. Before this happened I did like the computer
    and loved how fast it loaded and operated as just a basic model laptop. However,
    not even 2 months later it wont turn on and I had to pay to ship to the manufacture
    to see what the issue is.I bought this as a replacement to the laptop that I had.
    The one I had was extremely slow and would have an error and restart on its own
    every once in awhile. This Chromebook is a 1000x faster than the old laptop. It's
    great for just a computer to have access to the internet. If you don't need much
    out of a laptop then this one is great, has a couple USB ports and an HDMI port as
    well as blue tooth ability. I also like how the screen is less reflective so it has
    less glare. Overall, great product for the short time I have had it!-->0
6   I don't usually give reviews, but this little guy is perfect for homework and
    general use. It's not a super powerful machine, but for the price it is perfect for
    a homework type computer. I have a Mac for design and web development, but this
    laptop is great for what I need it for, I would suggest making use of one drive or
    an external hard drive for storage.-->0
7   I had to send this back. The keyboard doesn't work, types BT instead of T and the
    letter U was messed up as well? Box it came in was pretty battered and the top of
    the laptop has a dent.-->0
8   I like this chromebook, it's easy to hook up and because it only runs on chrome
    doesn't get too complicated. I am 72 yrs old and not really good with technology so
    it is a bit of learning curve for me. I would certainly recommend it.Edit: I am
    dissapointed that I can't do video calls on it. The camera only points to me and
    not the subject. Didn't realize this until recently.-->0
9
10  Given the following review, please return the judgement result:
```

Result

- Pre: 0.2985
- Rec: 1
- F1: 0.4598

	Predict=1	Predict=0
Label=1	20	0
Label=0	47	53

api-Exp3

- Rewrite the prompt, and add that when the review is meaningless, it also returns 0.

Prompt

```
1   Given a computer purchase review, determine whether the review contains "novel
    needs". A novel need refers to a function not included in the computer. If there
    exists novel needs, return 1; if not, or if the comment is meaningless, return 0.
2   Here are few examples:
3
4   The pre-installed software on this computer is helpful, but the bloatware is a
    nuisance. An innovative idea would be an intelligent software manager that can
    automatically detect and uninstall unwanted programs.-->1
5   I am bringing my review down to 3 stars for now as I had to just send the computer
    back to the manufacturer because it wouldn't turn on. I have had the computer less
    than 2 months and already an issue. Before this happened I did like the computer and
    loved how fast it loaded and operated as just a basic model laptop. However, not
    even 2 months later it wont turn on and I had to pay to ship to the manufacture to
    see what the issue is.I bought this as a replacement to the laptop that I had. The
    one I had was extremely slow and would have an error and restart on its own every
    once in awhile. This Chromebook is a 1000x faster than the old laptop. It's great
    for just a computer to have access to the internet. If you don't need much out of a
    laptop then this one is great, has a couple USB ports and an HDMI port as well as
    blue tooth ability. I also like how the screen is less reflective so it has less
    glare. Overall, great product for the short time I have had it!-->0
6
7   Given the following review, please return the judgement result:
```

Result

- Pre: 0.3279
- Rec: 1
- F1: 0.4939

	Predict=1	Predict=0
Label=1	20	0
Label=0	41	58

1 reviews cannot be determined (true label is 0)

api-Exp4

- Tell the model some examples that are easy to get wrong.

Prompt

```
 1  Given a computer purchase review, determine whether the review contains "novel
    needs". A novel need refers to a function not included in the computer. If there
    exists novel needs, return 1; if not, or if the comment is meaningless, return 0.
 2  Here are few examples:
 3
 4  The pre-installed software on this computer is helpful, but the bloatware is a
    nuisance. An innovative idea would be an intelligent software manager that can
    automatically detect and uninstall unwanted programs.-->1
 5  I am bringing my review down to 3 stars for now as I had to just send the computer
    back to the manufacturer because it wouldn't turn on. I have had the computer less
    than 2 months and already an issue. Before this happened I did like the computer
    and loved how fast it loaded and operated as just a basic model laptop. However,
    not even 2 months later it wont turn on and I had to pay to ship to the manufacture
    to see what the issue is.I bought this as a replacement to the laptop that I had.
    The one I had was extremely slow and would have an error and restart on its own
    every once in awhile. This Chromebook is a 1000x faster than the old laptop. It's
    great for just a computer to have access to the internet. If you don't need much
    out of a laptop then this one is great, has a couple USB ports and an HDMI port as
    well as blue tooth ability. I also like how the screen is less reflective so it has
    less glare. Overall, great product for the short time I have had it!-->0
 6
 7  You may have misjudged these examples, their labels are 0, not 1:
 8  I like this chromebook, it's easy to hook up and because it only runs on chrome
    doesn't get too complicated. I am 72 yrs old and not really good with technology so
    it is a bit of learning curve for me. I would certainly recommend it.Edit: I am
    dissapointed that I can't do video calls on it. The camera only points to me and
    not the subject. Didn't realize this until recently.
 9  The MacBook delivers top-notch performance! It's 14 hours of battery life
    delivers!!! The bright and colorful display all in is a delightfully portable
    design. It's truly worthy of the Air name.
10
11  Given the following review, please return the judgement result:
```

Result

- Pre: 0.3846
- Rec: 1
- F1: 0.5555

	Predict=1	Predict=0
Label=1	20	0
Label=0	32	68

api-Exp5

- Based on api-Exp4, add more examples that might be misjudged.

Prompt

Given a computer purchase review, determine whether the review contains "novel needs". A novel need refers to a function not included in the computer. If there exists novel needs, return 1; if not, or if the comment is meaningless, return 0.

Here are few examples:

The pre-installed software on this computer is helpful, but the bloatware is a nuisance. An innovative idea would be an intelligent software manager that can automatically detect and uninstall unwanted programs.-->1

I am bringing my review down to 3 stars for now as I had to just send the computer back to the manufacturer because it wouldn't turn on. I have had the computer less than 2 months and already an issue. Before this happened I did like the computer and loved how fast it loaded and operated as just a basic model laptop. However, not even 2 months later it wont turn on and I had to pay to ship to the manufacture to see what the issue is.I bought this as a replacement to the laptop that I had. The one I had was extremely slow and would have an error and restart on its own every once in awhile. This Chromebook is a 1000x faster than the old laptop. It's great for just a computer to have access to the internet. If you don't need much out of a laptop then this one is great, has a couple USB ports and an HDMI port as well as blue tooth ability. I also like how the screen is less reflective so it has less glare. Overall, great product for the short time I have had it!-->0

You may have misjudged these examples, their labels are 0, not 1:

I like this chromebook, it's easy to hook up and because it only runs on chrome doesn't get too complicated. I am 72 yrs old and not really good with technology so it is a bit of learning curve for me. I would certainly recommend it.Edit: I am dissapointed that I can't do video calls on it. The camera only points to me and not the subject. Didn't realize this until recently.

The MacBook delivers top-notch performance! It's 14 hours of battery life delivers!!! The bright and colorful display all in is a delightfully portable design. It's truly worthy of the Air name.

I needed a new laptop for school, but I also wanted something powerful enough for some casual gaming here and there and maybe some video editing down the line. This notebook is able to do both of those! And it's light enough that I don't feel weighed down when it's in my school bag. I'm not a fan of the red keyboard, but it's no deal breaker. I upgraded to a Samsung 1tb nvme SSD and added 8gb more ram for 16 total. This thing is officially a little powerhouse! MSI customer support is also amazing, they answer the phone right away and are very knowledgeable about all of their products. There's tons and tons of information about their products on their website and youtube page. Thanks to that, upgrading this notebook was easy for me (who's otherwise not super knowledgeable about computers). Money well spent!

Given the following review, please return the judgement result:

Result

- Pre: 0.3922
- Rec: 1
- F1: 0.5634

	Predict=1	Predict=0
Label=1	20	0
Label=0	31	69

3. Instruction tuning with LLaMA

- https://github.com/facebookresearch/llama

Prompt

```
1  Given a computer purchase review data from an e-commerce platform, determine whether
   the review data contains new requirements. New requirements indicate features that
   the computer does not currently have. Return 1 (contains new requirements) or 0
   (does not contain new requirements).
2  Here are some examples:
3
4  Maybe a laptop with multiple foldable screens which can be combined to form a bigger
   one will be the solution.==>1
5  I'm utterly frustrated with the laptop's battery life. For a device that boasts high
   performance, the battery drains faster than I would like. I find myself tethered to
   a power outlet more often than not. The inclusion of a higher capacity battery or a
   fast-charge feature would make this laptop truly mobile.==>1
6  The laptop is a great choice for people who want a portable gaming experience,
   though there are a few problems. First, the laptop will get loud/hot very fast on
   newer games unless you lower the quality a lot. Second, the touchpad is sensitive
   and you'll find yourself accidently clicking things from time to time. Third, the
   people who shipped my laptop didn't have a sticker on the package warning about the
   lithium batteries as well as didn't even put any bubble wrap to keep the laptop
   safe. Finally, the battery life only last a few hours so you'll have to charge
   regularly. Other than that, the laptop works great and can play any game I throw at
   it. I would recommend it to anyone who wants an affordable gaming experience==>0
7  i had to buy this for school but honestly the m1 is a better value, especially
   refurbished or used. if all you'll be doing is schoolwork, youtube, spotify and
   mail, this laptop does not feel worth 1000 bucks. i'm too lazy to return it at this
   point but if i could pick again i would've bought the cheaper m1 macbooks.==>0
8
9  Given the following review, please return the judgement result:
```

Case Study

- True labels are all **0**

```
1   'Based on the information provided, the review data contains a new requirement. The
    reviewer mentions that the F10 key is defective right out of the box, indicating
    that the laptop does not currently have a functioning F10 key. Therefore, the
    judgment result is 1 (contains new requirements).' 0
2
3   ====================================
4
5   'Based on the review data you provided, the judgment result is 0 (does not contain
    new requirements). The review does not mention any specific new features or
    requirements that the computer does not currently have. It simply expresses a
    positive sentiment towards the laptop, stating that it is "muy bueno" (very good).'
    0
6
7   ====================================
8
9   'Based on the review you provided, the judgment result is 1 (contains new
    requirements).\n\nThe reviewer mentions that they had issues with the shipping
    process, specifically that the shipping was delayed twice despite their attempts to
    reschedule and pay for one-day shipping. This indicates that the customer had
    specific requirements for the shipping process that were not met, such as timely
    delivery and reliable scheduling. These requirements are not currently met by the
    laptop itself, but rather by the shipping and delivery process. Therefore, this
    review contains new requirements.'0
10
11  ====================================
12
13  'Based on the review, it does not contain any new requirements. The user mentions
    that the laptop is good for their needs, but they do not mention any specific
    features that the laptop currently lacks. Therefore, the result is 0 (does not
    contain new requirements).' 0
14
15  ====================================
16
17  "Based on the review, I would return a result of 0 (does not contain new
    requirements). The review does not mention any specific features that the computer
    does not currently have, but rather expresses satisfaction with the computer's
    value for the price." 0
18
19  ====================================
20
21  "Based on the review you provided, the judgment result is 0 (does not contain new
    requirements). The review does not mention any new features or requirements that
    the computer does not currently have. It only mentions the laptop's touch and
    keyboard, which are existing features." 0
22
```

```
23    =================================
24
```

3. Fine-tune LLM

LoRA

LoRA: Low-Rank Adaptation of Large Language Models

Edward Hu[*]   **Yelong Shen**[*]   **Phillip Wallis**   **Zeyuan Allen-Zhu**
Yuanzhi Li   **Shean Wang**   **Lu Wang**   **Weizhu Chen**
Microsoft Corporation
{edwardhu, yeshe, phwallis, zeyuana,
yuanzhil, swang, luw, wzchen}@microsoft.com
yuanzhil@andrew.cmu.edu
(Version 2)
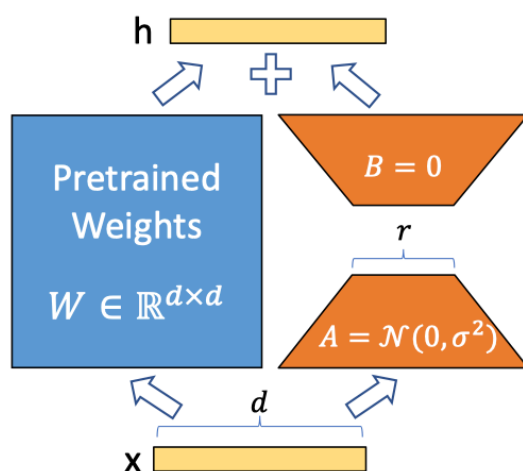
Figure 1: Our reparametrization. We only train A and B.

- It freezes the pre-trained model weights and injects trainable rank decomposition matrices into each layer of the Transformer architecture
- LoRA can reduce the number of trainable parameters by 10,000 times and the GPU memory requirement by 3 times.

Code

Chatglm-6B Lora finetune: https://github.com/hiyouga/ChatGLM-Efficient-Tuning

Dataset

- format: json

```
1  {"instruction": '''Given a computer purchase review data from an e-commerce
   platform, determine whether the review data contains new requirements. New
   requirements indicate features that the computer does not currently have. Return 1
   (contains new requirements) or 0 (does not contain new requirements).
2  Here are some examples:
3
4  The computer runs fast, but the cooling is lacking. It would be great if it could
   use a freeze-like technology to cool down in a second. And then there is the screen
   quality is not good, cracks appeared without much use.  1
5  This computer has a great processing speed and the design is sleek, but the battery
   life leaves a lot to be desired. I hope in the future they could incorporate solar
   charging features so I could work all day without worrying about running out of
   power. 1
6  The laptop is a great choice for people who want a portable gaming experience,
   though there are a few problems. First, the laptop will get loud/hot very fast on
   newer games unless you lower the quality a lot. Second, the touchpad is sensitive
   and you'll find yourself accidently clicking things from time to time. Third, the
   people who shipped my laptop didn't have a sticker on the package warning about the
   lithium batteries as well as didn't even put any bubble wrap to keep the laptop
   safe. Finally, the battery life only last a few hours so you'll have to charge
   regularly. Other than that, the laptop works great and can play any game I throw at
   it. I would recommend it to anyone who wants an affordable gaming experience  0
7  I had to buy this for school but honestly the m1 is a better value, especially
   refurbished or used. if all you'll be doing is schoolwork, youtube, spotify and
   mail, this laptop does not feel worth 1000 bucks. i'm too lazy to return it at this
   point but if i could pick again i would've bought the cheaper m1 macbooks. 0
8
9  Given the following reviews, please return the judgement result:''',
10
11   "input": "My daughter loves her new laptop!",
12   "output": "0"},
```

- Train:
  - label=1: 56
  - label=0: 3000
- Test:
  - label=1: 24
  - label=0: 300

Script

```
1   python src/train_sft.py \
2       --do_train \
3       --model_name_or_path path_to_model \
4       --dataset nn_train \
5       --finetuning_type lora \
6       --output_dir path_to_output \
7       --per_device_train_batch_size 8 \
8       --gradient_accumulation_steps 8 \
9       --lr_scheduler_type cosine \
10      --logging_steps 10 \
11      --save_steps 1000 \
12      --learning_rate 5e-5 \
13      --num_train_epochs epoch_size \
14      --fp16
```

Result

Exp1 (epoch=1)

```
{"label": "0", "predict": "1. My daughter loves her new laptop!"}
{"label": "1", "predict": "1"}
{"label": "0", "predict": "1. Yes"}
{"label": "0", "predict": "1"}
{"label": "0", "predict": "1. Yes, the review data contains new requirements for the computer. The
reviewer mentions the need for a freeze-like technology to cool down the computer in a second, and the
screen quality is not good with cracks appearing without much use."}
{"label": "1", "predict": "1"}
{"label": "1", "predict": "1"}
{"label": "0", "predict": "1"}
{"label": "0", "predict": "1"}
{"label": "0", "predict": "1"}
{"label": "0", "predict": "Based on the review, it does not contain new requirements. The review
mentions the keyboard issue, which is already known to be a common problem with laptop keyboards."}
{"label": "0", "predict": "1"}
```

- Format is not correct
- Almost 70% predictions are "1"

Exp2 (epoch=2)

{"label": "0", "predict": "0"}
{"label": "1", "predict": "1"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "1", "predict": "1"}
{"label": "1", "predict": "1"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "1"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "Based on the review, it does not contain new requirements."}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "1. 0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "1"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "1"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "1", "predict": "1"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "1", "predict": "1. The need for an anti-theft system for windows with motion detection technology is a critical security feature that cannot be overlooked."}

Result after manually processed:

- Precision: 0.28
- Recall: 0.875
- F1: 0.424

	Predict=1	Predict=0
Label=1	21	3
Label=0	54	297

Exp3 (epoch=3)

{"label": "0", "predict": "0"}
{"label": "1", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "1", "predict": "0"}
{"label": "1", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
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{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "1", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}
{"label": "0", "predict": "0"}

- All predictions are: **"0"**