



Analysis of Mobile App Usage During Coronavirus Outbreak

—Mobile Internet Highlights of the 2020
Chinese New Year Holiday

Aurora Mobile, NASDAQ: JG

2020.2

Key Findings

Due to the spread of Coronavirus (2019-nCoV) during the Chinese New Year Holiday, the majority of mobile users across the country stayed at home to avoid outdoor activities, leading to a sharp rise of screen time of 26%. Online education, remote working, cooking and dining at home, indoor entertainment and news reading apps saw a large spike in usage.



Instant Messaging Apps - DingTalk - an office app, usage fell to recent lows during the holiday. However, after the holiday, many people worked from home, making the app rebound over 100% and rising.



Weibo - Weibo's DAU growth during the holiday beat that of last year because of the clicks on coronavirus headlines. Time spent also increased over 50% compared with that of the same period last year.



News Reading Apps - Baidu's DAU and time spent had a steady increase after the holiday as people mainly used it for searching on the coronavirus updates. DAU and time spent of **Tencent News** and **Toutiao** started to rise even before the holiday. Tencent News has released a daily tracker of the disease, which led to DAU increase of almost 50%.



Short-Video/Games/Streaming Apps - Benefited from the super long holiday, entertainment apps gained more compared with the same period of last year. **Tik Tok/Kwai/Xigua TV's** marketing campaigns on New Year's Eve were well received. Video streaming apps like **iQiyi** also saw much increased traffic. People who are stuck in home killed time using these apps to reduce the possibility of cross-infection.



O2O/Food Delivery/Ride sharing Apps - These segments were impacted most by the disease. There are restrictions by the government to go outside, so demand for ride sharing decreased sharply. The demand will resume once the disease outbreak ends. They are also lending a hand during this time. **Meituan/Ele.me** are helping citizens and hospital staff who are in need by delivering food and vegetables. **Didi** is giving free rides to people who are in need.



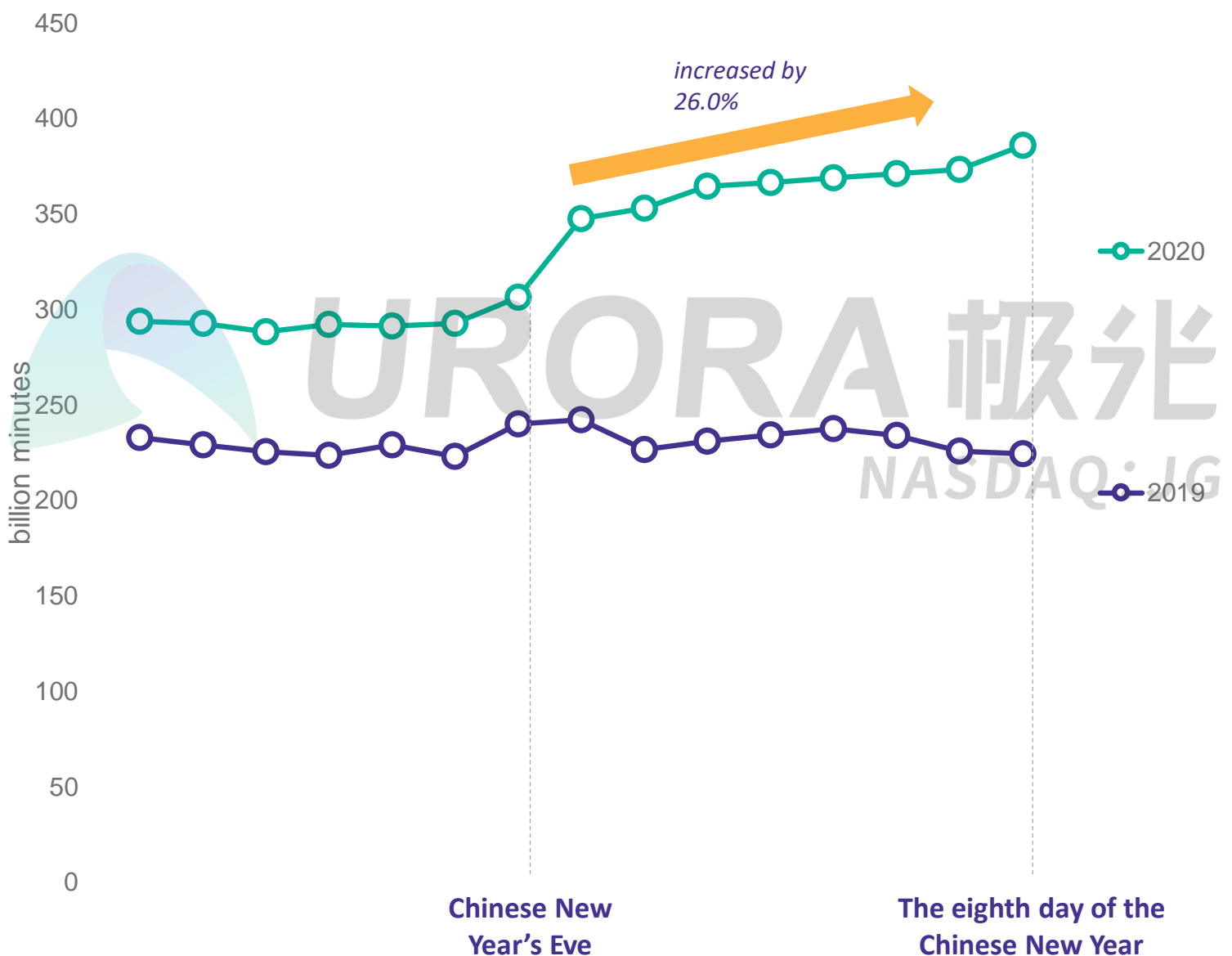
Online education/Fresh Food E-commerce - These segments had a U-shape curve and saw an abrupt increase of multiple times normal DAU.

Background

In January of 2020, a SARS-like virus outbreak originating in Wuhan is spreading into other parts of China

- The person-to-person transmission of the novel coronavirus has been confirmed by Chinese respiratory scientist Zhong Nanshan on Jan. 20th, and to better control the spread of the virus, people started to avoid outdoor activities
- Total time spent of all users picked up during the CNY holiday

Daily Total Time Spent of All Users



Source : Aurora Mobile, NASDAQ: JG

Data Period : 2019.1.29-2019.2.12 ; 2020.1.18-2020.2.1

Industry Analysis

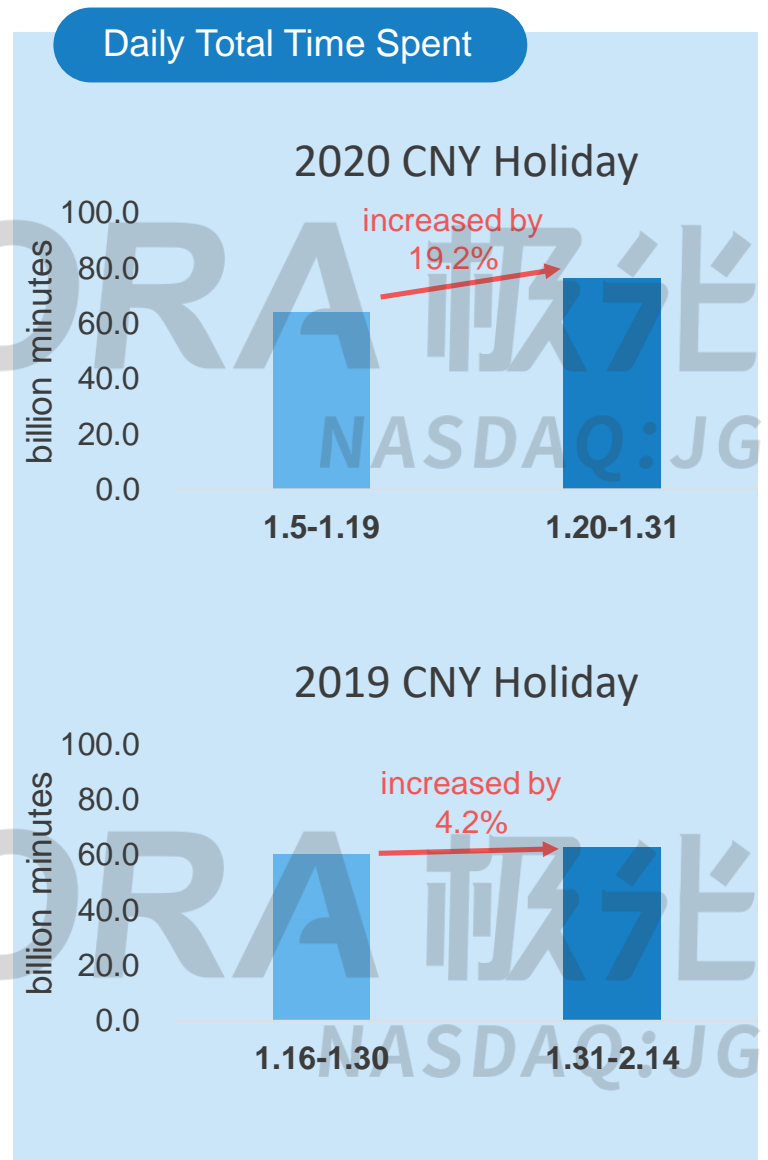
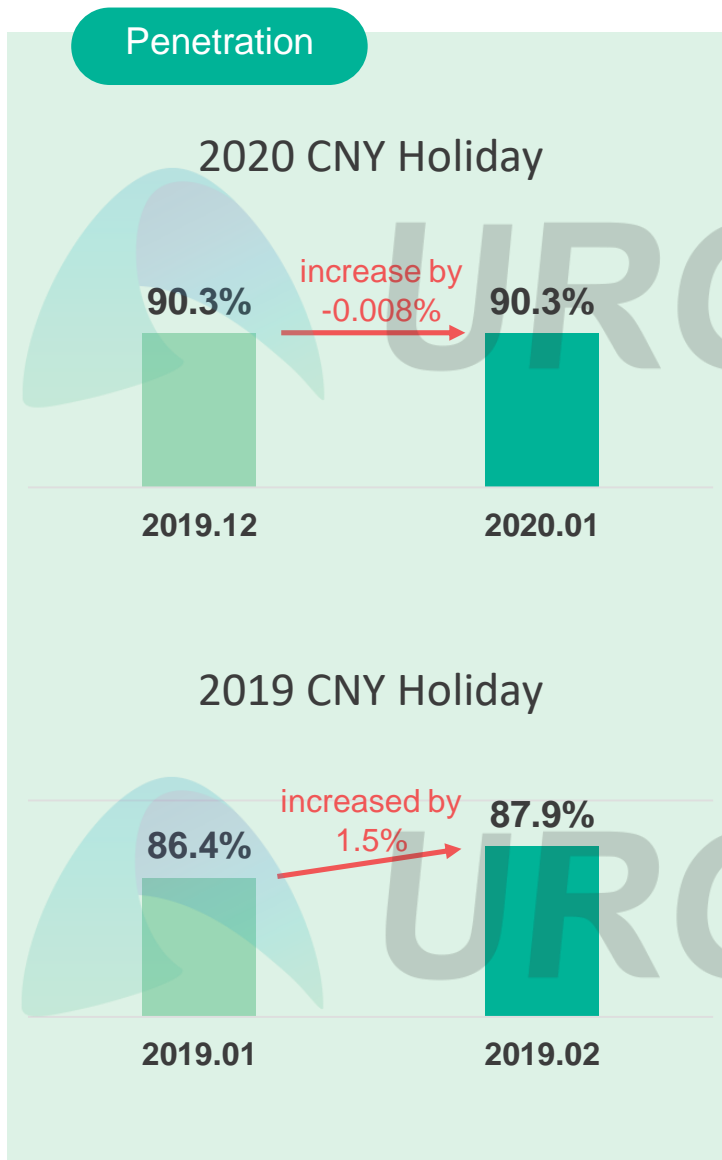


Instant Messaging Industry Analysis

Time spent had increased a lot during the holiday compared with the same period last year

- Penetration (Install Base)- Since instant messaging apps have already reached a high install base, there was no obvious change on penetration during the holiday
- Daily Total Time Spent- Daily time spent of instant messaging apps during 2020 CNY holiday increased by nearly 20% compared with 2019 CNY holiday, which was impacted by the disease. People chatted more online.

Penetration and Total Time Spent: Instant Messaging Apps

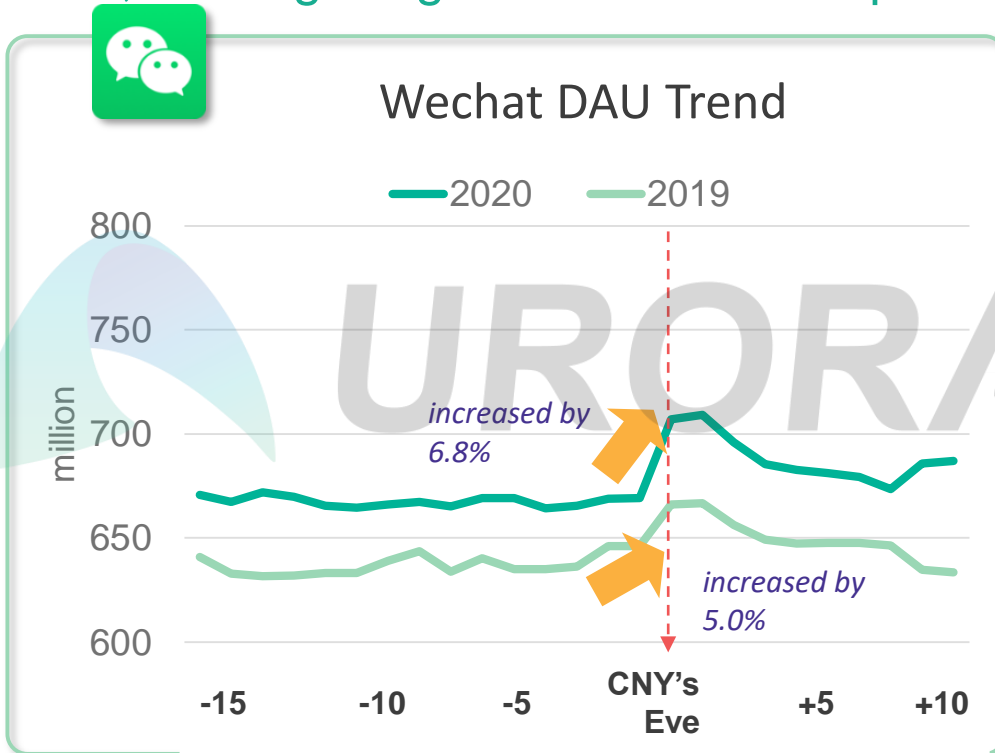


Source : Aurora Mobile, NASDAQ: JG

Data Period : 2019.1-2020.2

Instant Messaging Apps Performance

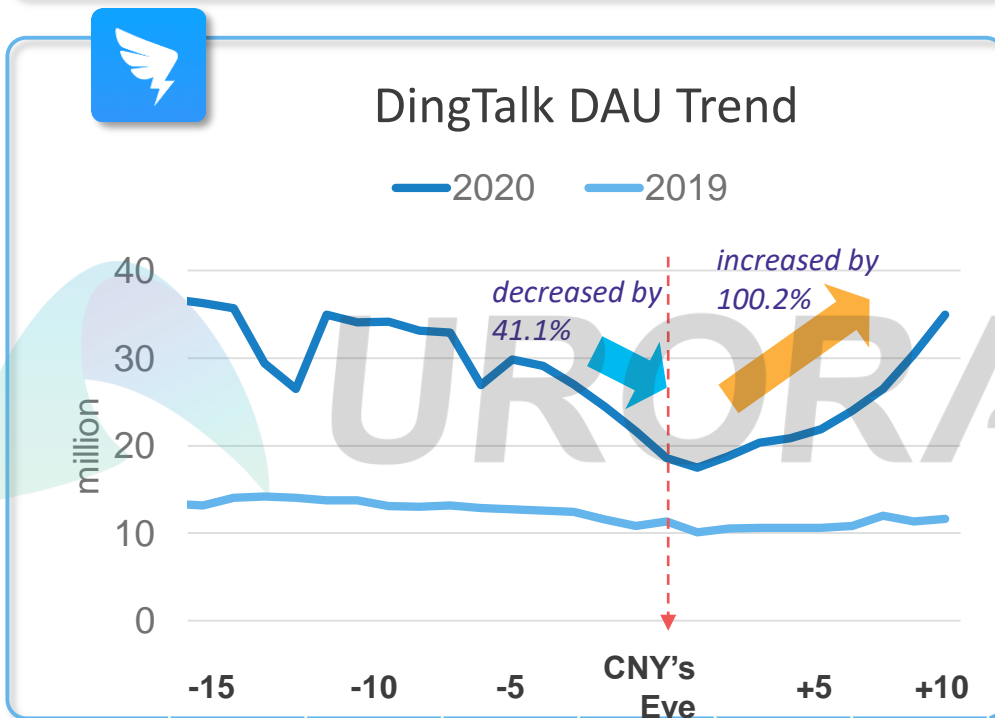
Wechat's DAU had a spike during the CNY holiday, while DingTalk as an office app, fell to recent lows during the holiday. However, after the holiday, people were forced to work from home, making DingTalk rebound and possibly hit new highs.



The CNY Holiday Wechat Daily Time Spent

2020 87.3 mins

2019 71.5 mins



The CNY Holiday DingTalk Daily Time Spent

2020 6.8 mins

2019 5.3 mins

Source : Aurora Mobile, NASDAQ: JG

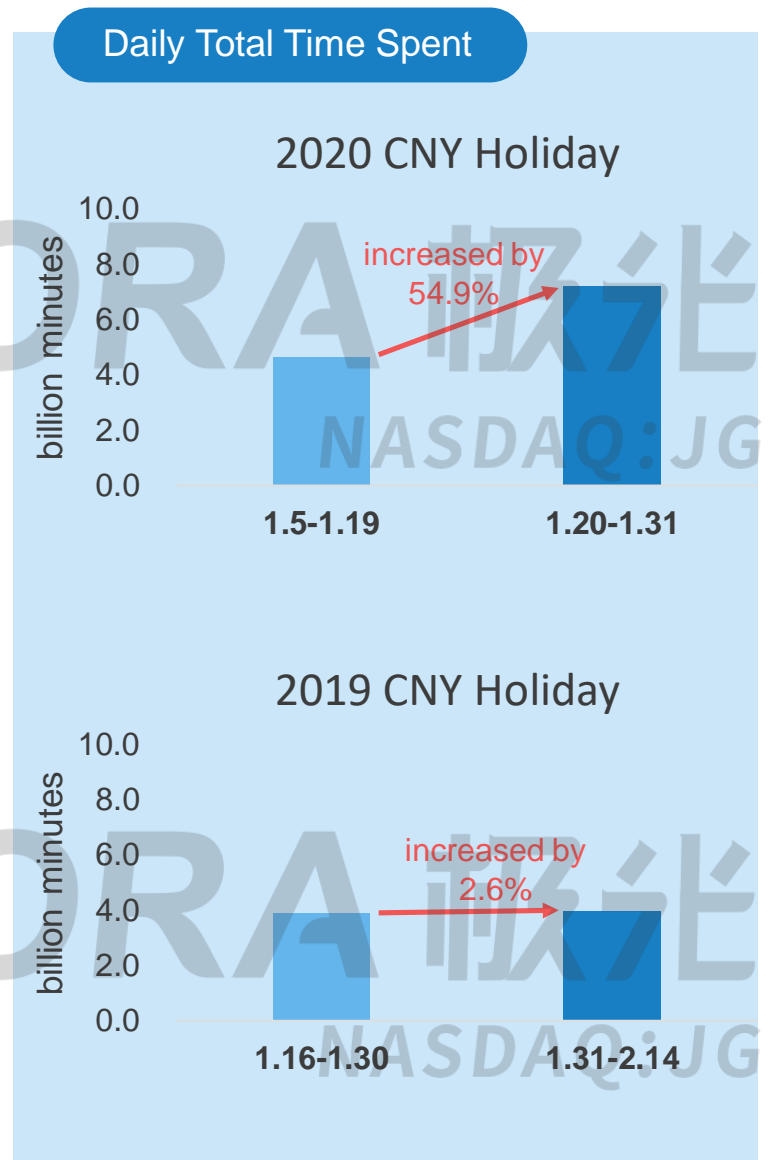
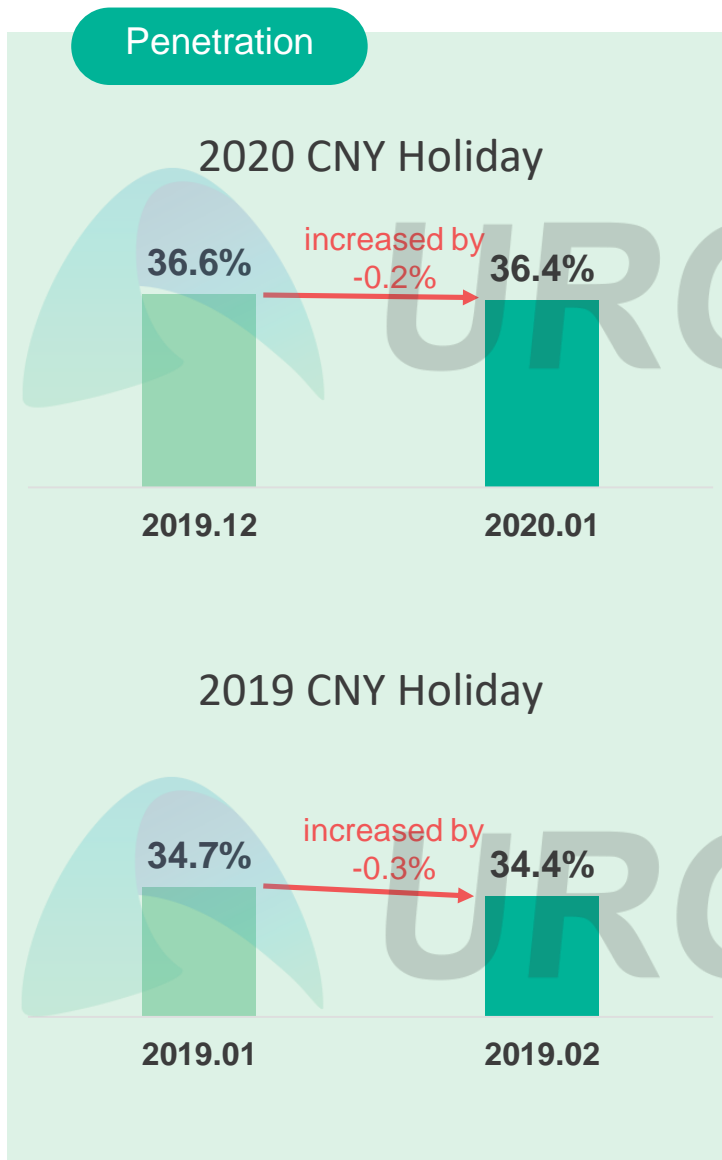
*Using CNY's Eve as base day and make year-to-year comparison, DAU Data period 2019.1.20-2019.2.13, 2020.1.9-2020.2.2; increase/decrease rates are the rates compared with peak/bottom

Blogs&Microblogs Industry Analysis

With the spread of the virus, time spent on blogs and microblogs apps increased substantially in January

- Penetration- Blogs&Microblogs apps penetration rates had been stable for years.
- Daily Total Time Spent- Daily time spent of blogsµblogs apps during the holiday increased substantially, showing that users were using these apps to keep updated on the coronavirus.

Penetration and Total Time Spent: Blogs & Microblogs Apps



Source : Aurora Mobile, NASDAQ: JG

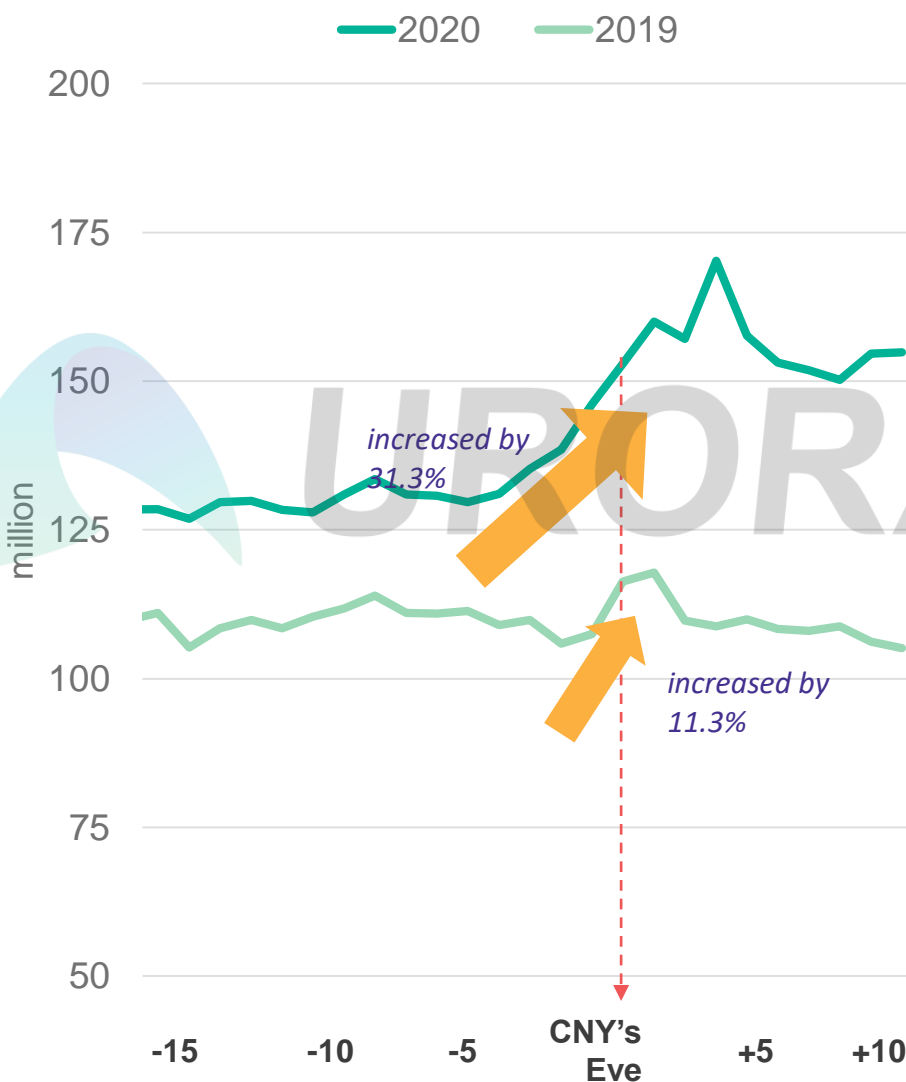
Data Period : 2019.1-2020.2

Blogs&Microblogs Apps Performance

Compared with last year, Weibo's DAU hiked during the CNY holiday. Daily time spent during the holiday also grew more than 50% to 53.7 minutes.



Weibo DAU Trend



The CNY Holiday
Weibo
Daily Time Spent

2020 53.7 mins

2019 35.2 mins

Source : Aurora Mobile, NASDAQ: JG

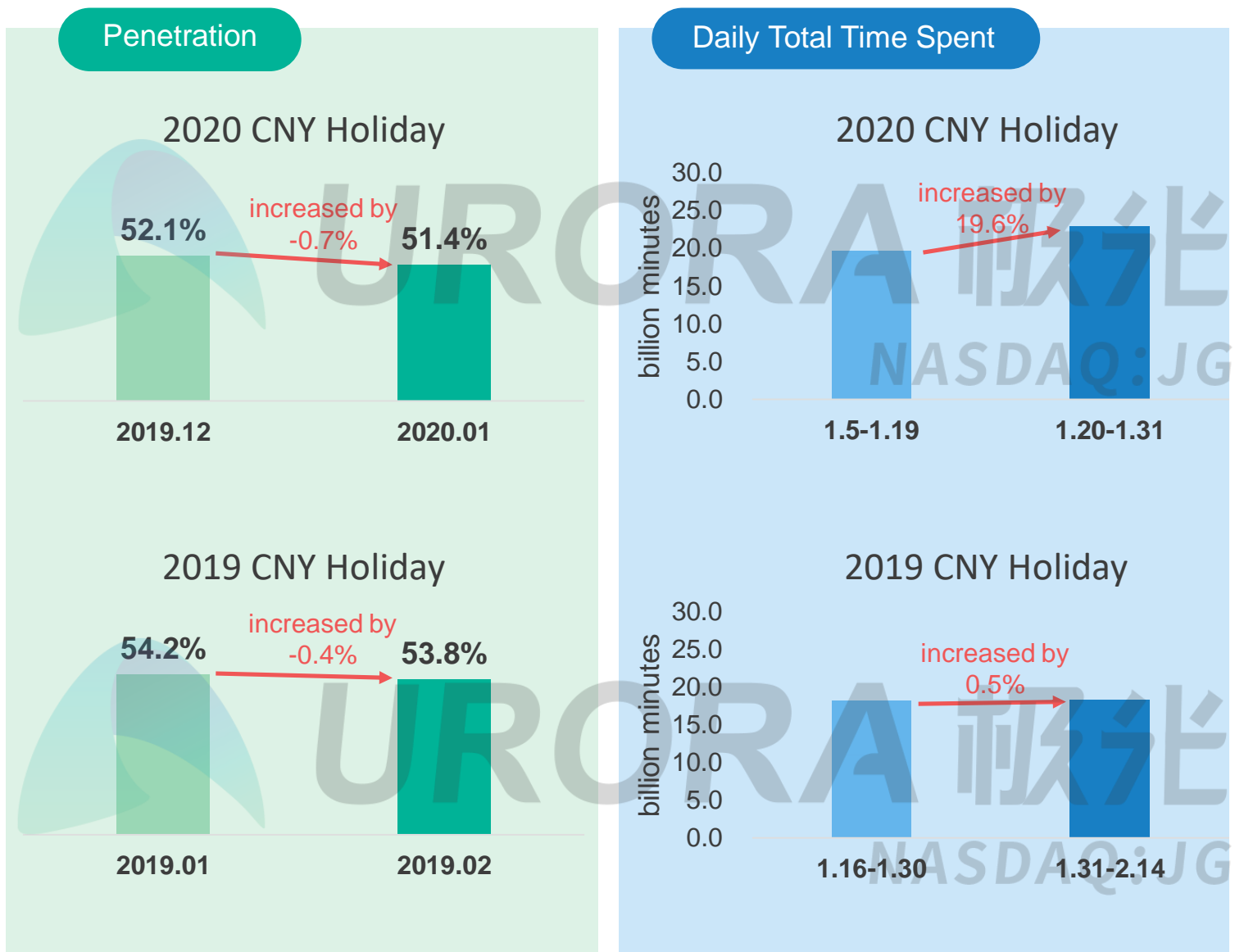
*Using CNY's Eve as base day and make year-to-year comparison, DAU Data period 2019.1.20-2019.2.13, 2020.1.9-2020.2.2; increase/decrease rates are the rates compared with peak/bottom

News Reading Industry Analysis

There is a seasonal downturn in terms of penetration rate of news reading apps. Time spent, however, rose by 20% impacted by the coronavirus outbreak

- Penetration- Penetration of news reading apps was slightly down but it normally decreases in January.
- Daily Total Time Spent- Time spent of news reading apps rose by 20% during the holiday as more people are paying close attention to the virus outbreak.

Penetration and Total Time Spent: News Reading Apps

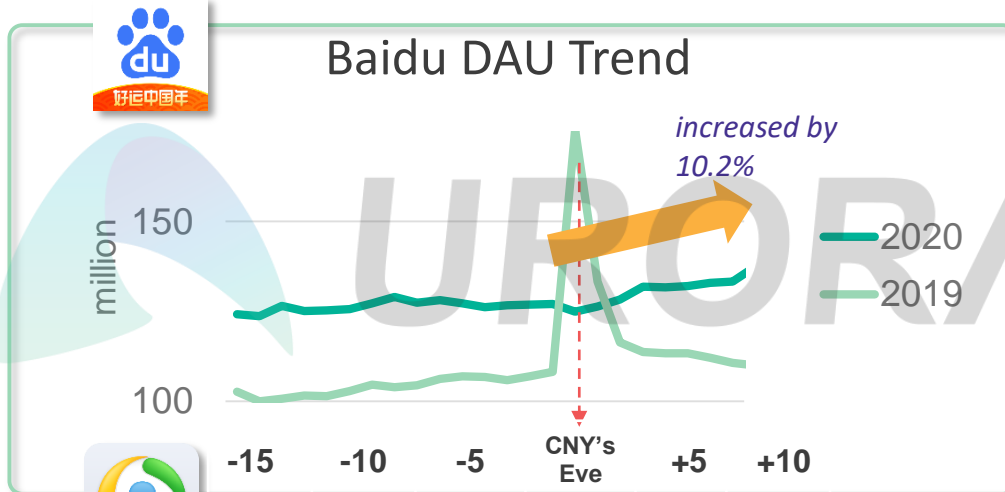


Source : Aurora Mobile, NASDAQ: JG

Data Period : 2019.1-2020.2

News Reading Apps Performance

Baidu's DAU and time spent had a steady increase after the holiday as people mainly used it for searching of the coronavirus updates. DAU and time spent of Tencent News and Toutiao started to rise even before the holiday.

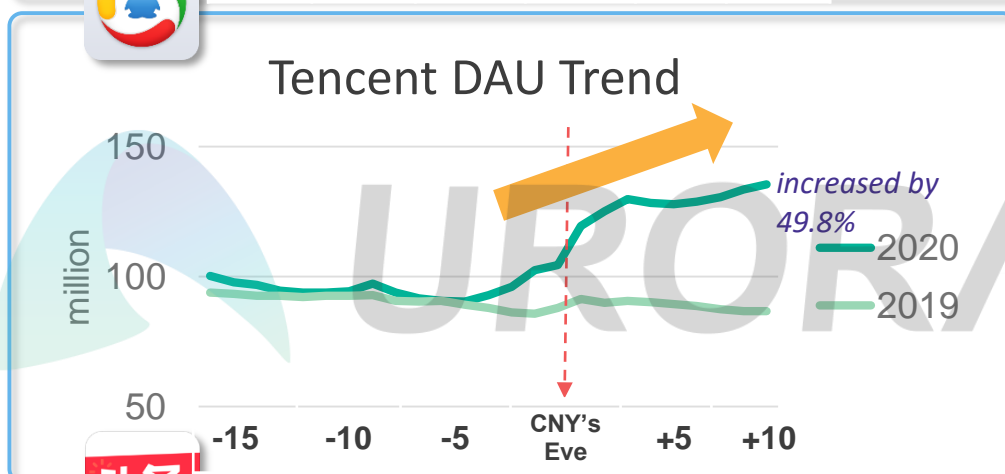


The CNY Holiday Baidu

Daily Time Spent

2020 59.6 mins

2019 39.0 mins

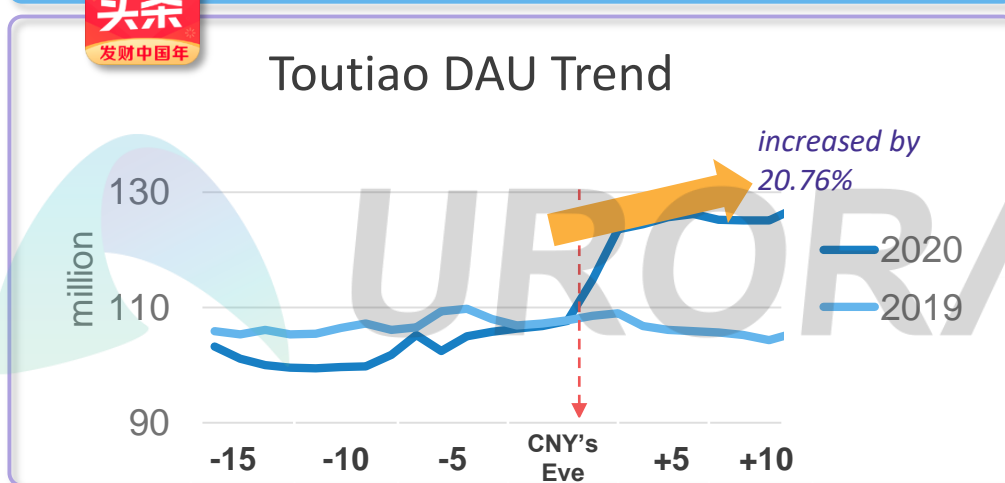


The CNY Holiday Tencent News

Daily Time Spent

2020 33.1 mins

2019 23.7 mins



The CNY Holiday Toutiao

Daily Time Spent

2020 121.9 mins

2019 94.4 mins

Source : Aurora Mobile, NASDAQ: JG

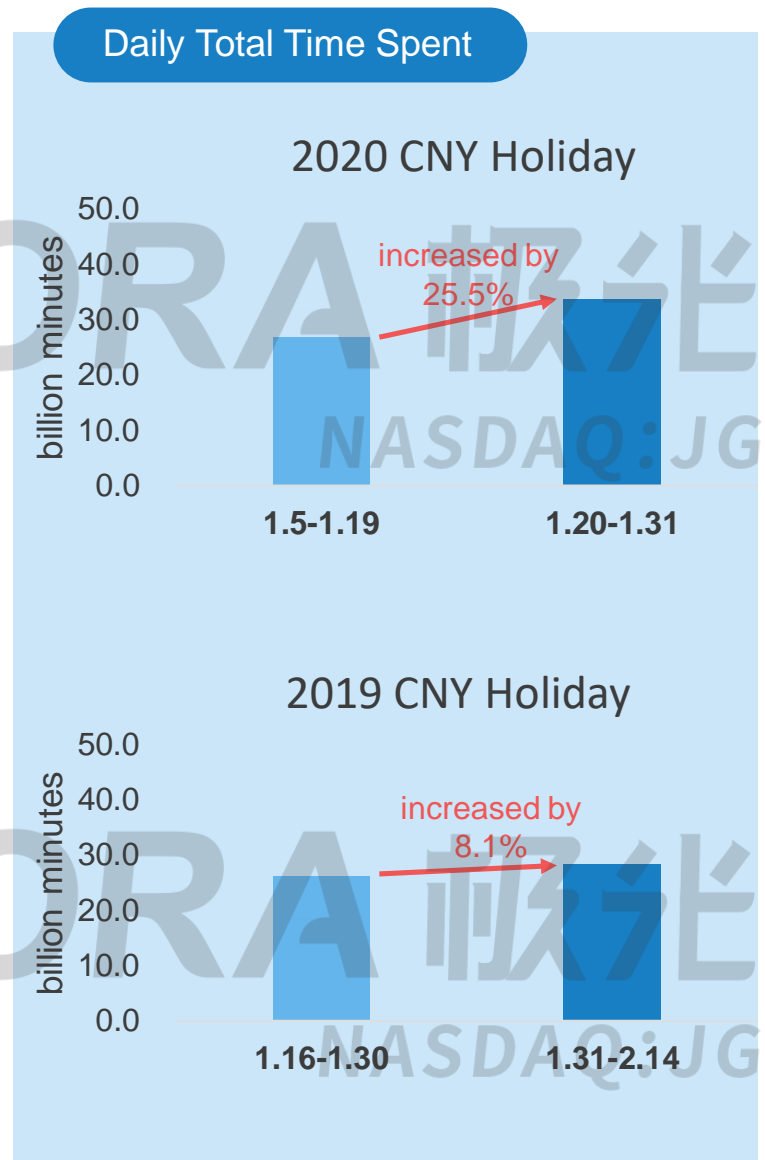
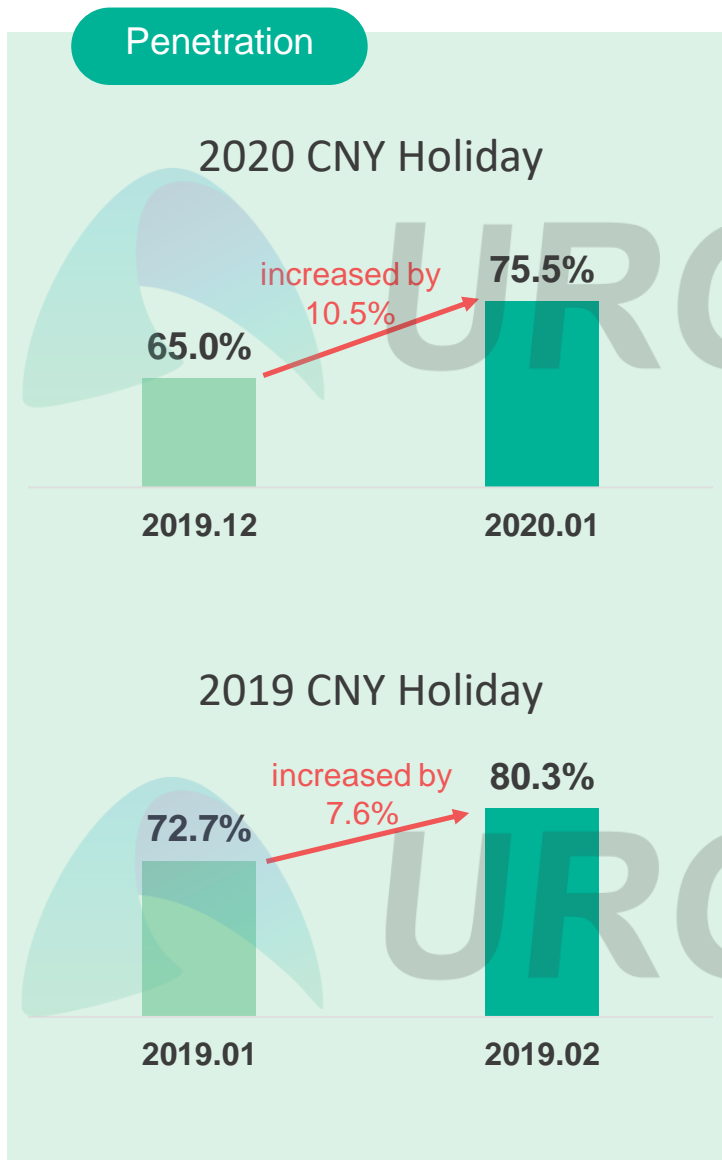
*Using CNY's Eve as base day and make year-to-year comparison, DAU Data period 2019.1.20-2019.2.13, 2020.1.9-2020.2.2; increase/decrease rates are the rates compared with peak/bottom

Mobile Games Industry Analysis

Usage of mobile games usually peaks during the CNY holiday. This year, mobile games were especially useful for people who were stuck at home to calm nerves

- Penetration- Mobile games install base grew significantly during the holiday. This year, the install base of mobile games increased even more.
- Daily Total Time Spent- Now that all the outdoor activities were banned, daily time spent of mobile games increased by 25.5% during the holiday time this year, far exceeding the 8.1% increase during the 2019 CNY holiday.

Penetration and Total Time Spent: Mobile Games Apps



Source : Aurora Mobile, NASDAQ: JG

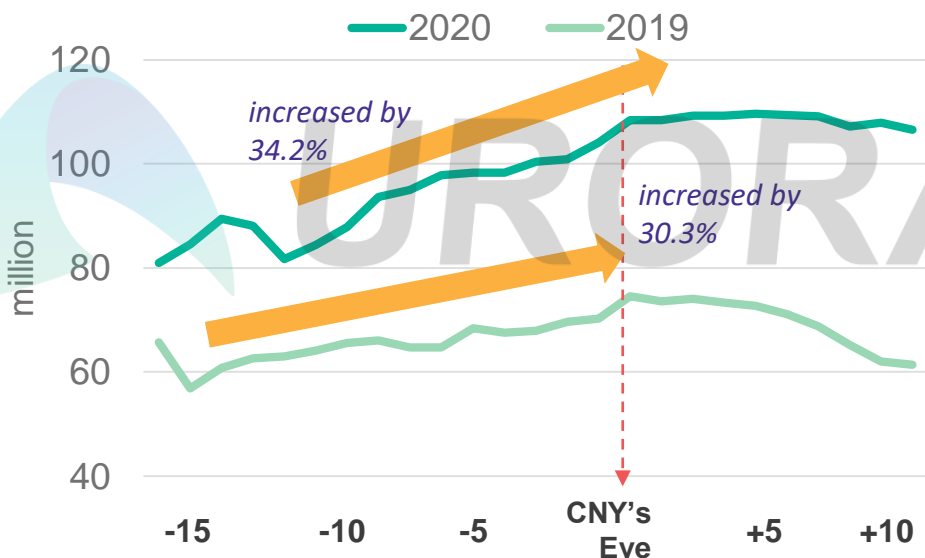
Data Period : 2019.1-2020.2

Mobile Games Apps Performance

DAU of Tencent's most popular games, Honor of Kings and Game for Peace went up more during the holiday this year but daily time spent gained less compared with last year. Possible reasons could be that momentum of the games have peaked overall or more time were spent on short videos and other entertainments.



Honor of Kings DAU Trend



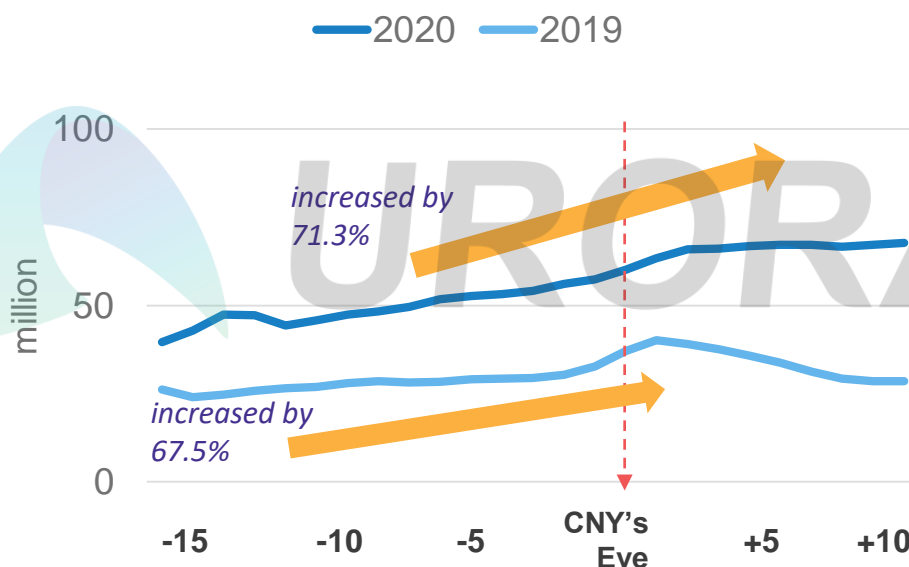
The CNY Holiday Honor of Kings Daily Time Spent

2020 109.2 mins

2019 127.3 mins



Game for Peace DAU Trend



The CNY Holiday Game for Peace Daily Time Spent

2020 90.4 mins

2019 92.7 mins

Source : Aurora Mobile, NASDAQ: JG

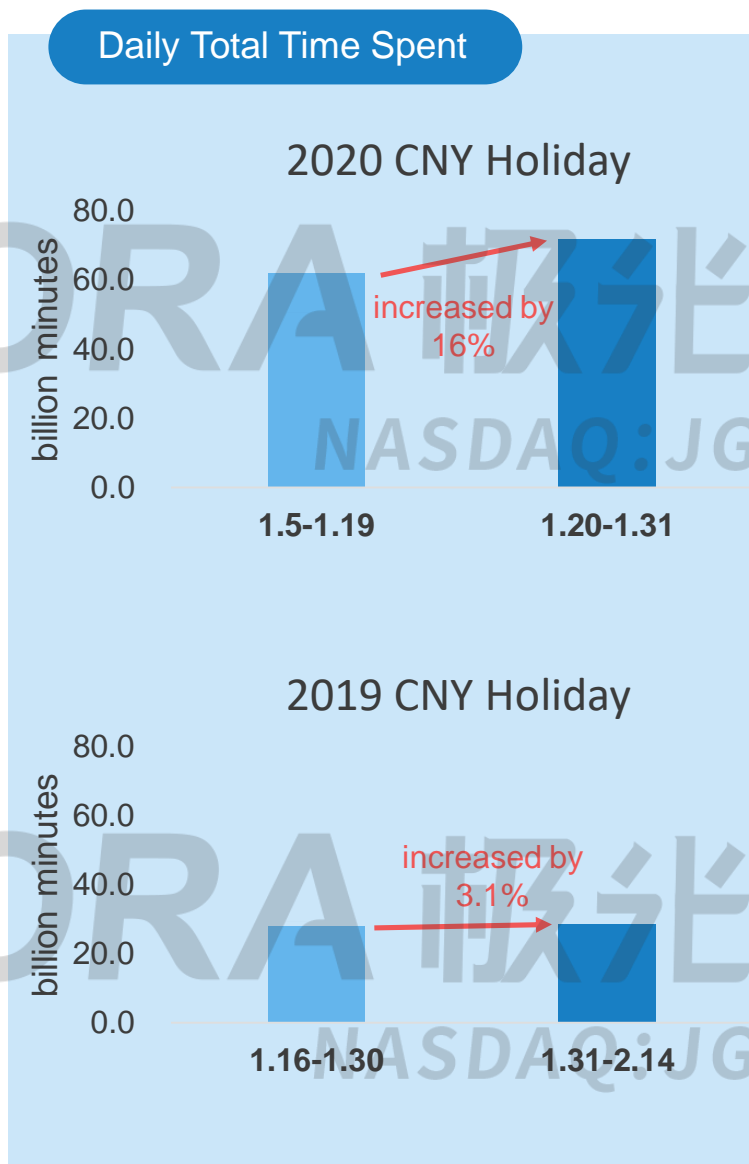
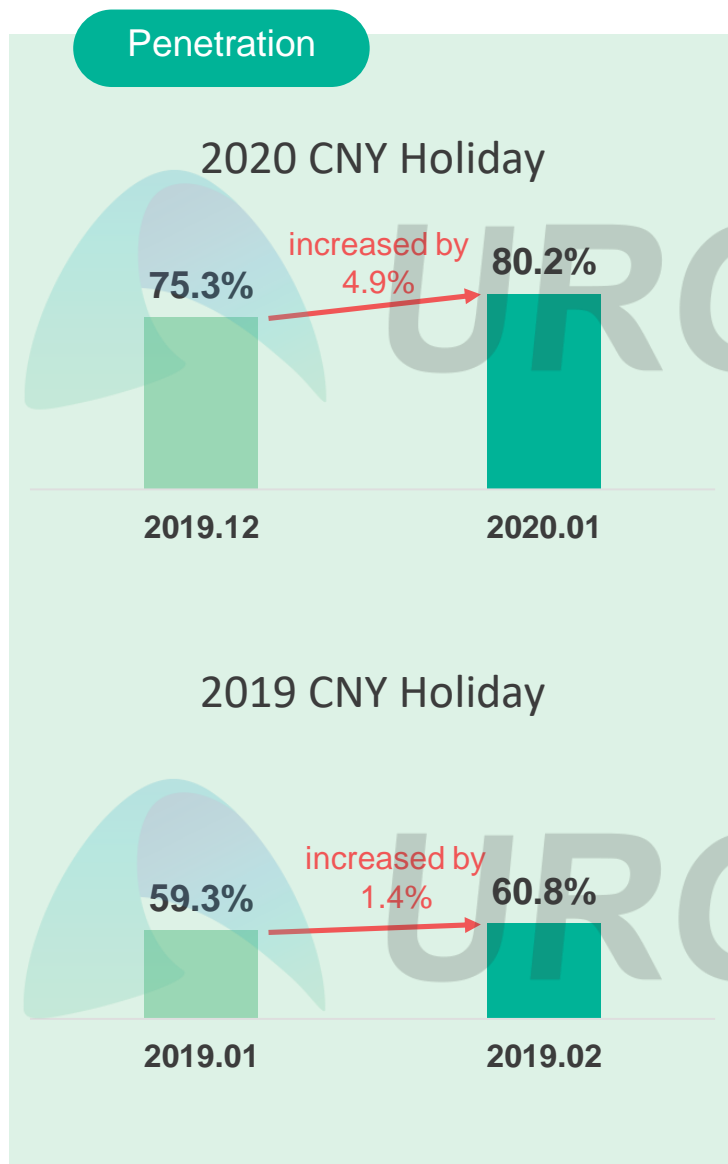
*Using CNY's Eve as base day and make year-to-year comparison, DAU Data period 2019.1.20-2019.2.13, 2020.1.9-2020.2.2; increase/decrease rates are the rates compared with peak/bottom

Short Videos Industry Analysis

Short video apps' marketing campaigns during CNY coupled with the emergence of the coronavirus outbreak stimulated usage of short video apps. Users use short video apps to kill time and stay informed on virus news

- Penetration- The latest number of penetration rate of the short video industry is 80%. The growth of install base should slow down in the foreseeable future.
- Daily Total Time Spent- Growth rate of daily time spent in 2020 CNY holiday is higher than that of the 2019 CNY holiday, which shows that the short video industry benefited from the coronavirus outbreak.

Penetration and Total Time Spent: Short Video Apps

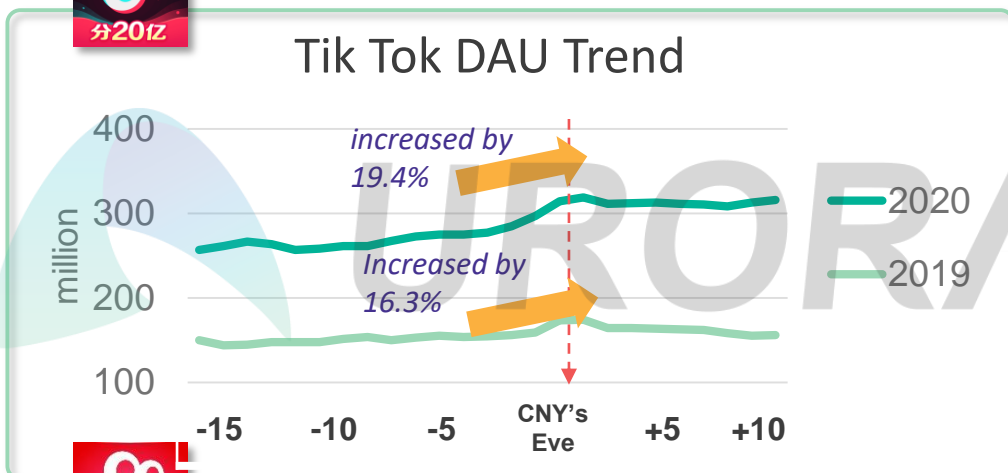


Source : Aurora Mobile, NASDAQ: JG

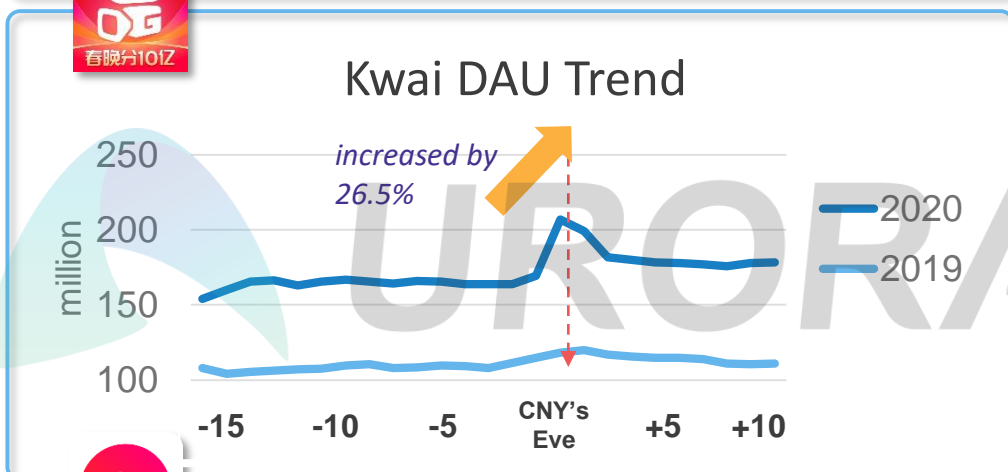
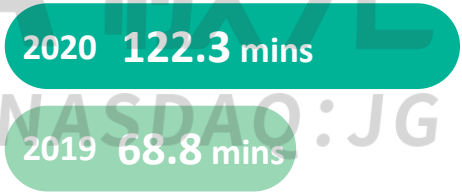
Data Period : 2019.1-2020.2

Short Videos Apps Performance

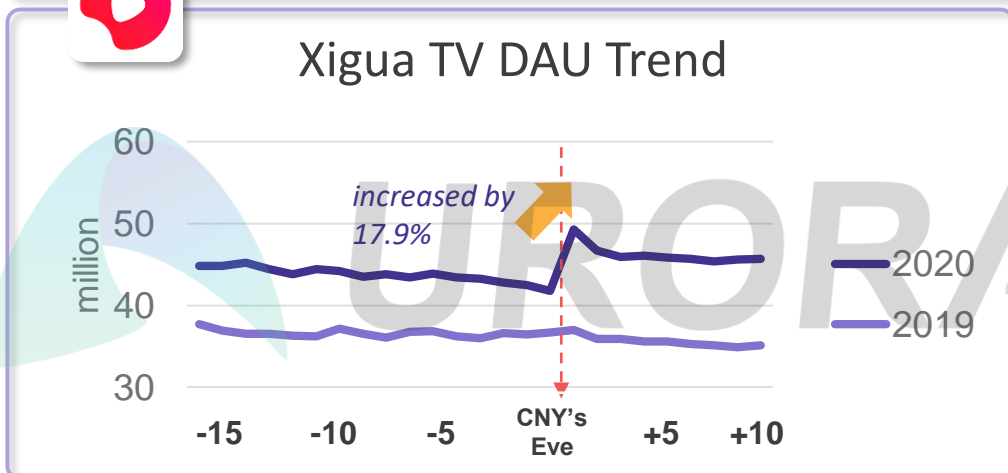
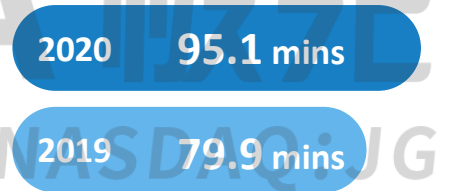
Tik Tok and Kwai both performed well during the holiday. Tik Tok sent out RMB2 billion in red envelopes during the holiday and its daily time spent nearly doubled. Kwai and Xigua TV gained more in terms of DAU and daily time spent during the holiday this year as well.



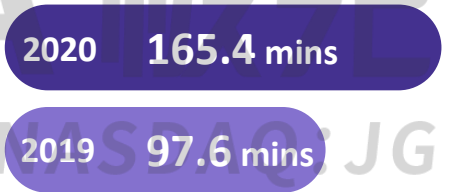
The CNY Holiday
Tik Tok
Daily Time Spent



The CNY Holiday
Kwai
Daily Time Spent



The CNY Holiday
Xigua TV
Daily Time Spent



Source : Aurora Mobile, NASDAQ: JG

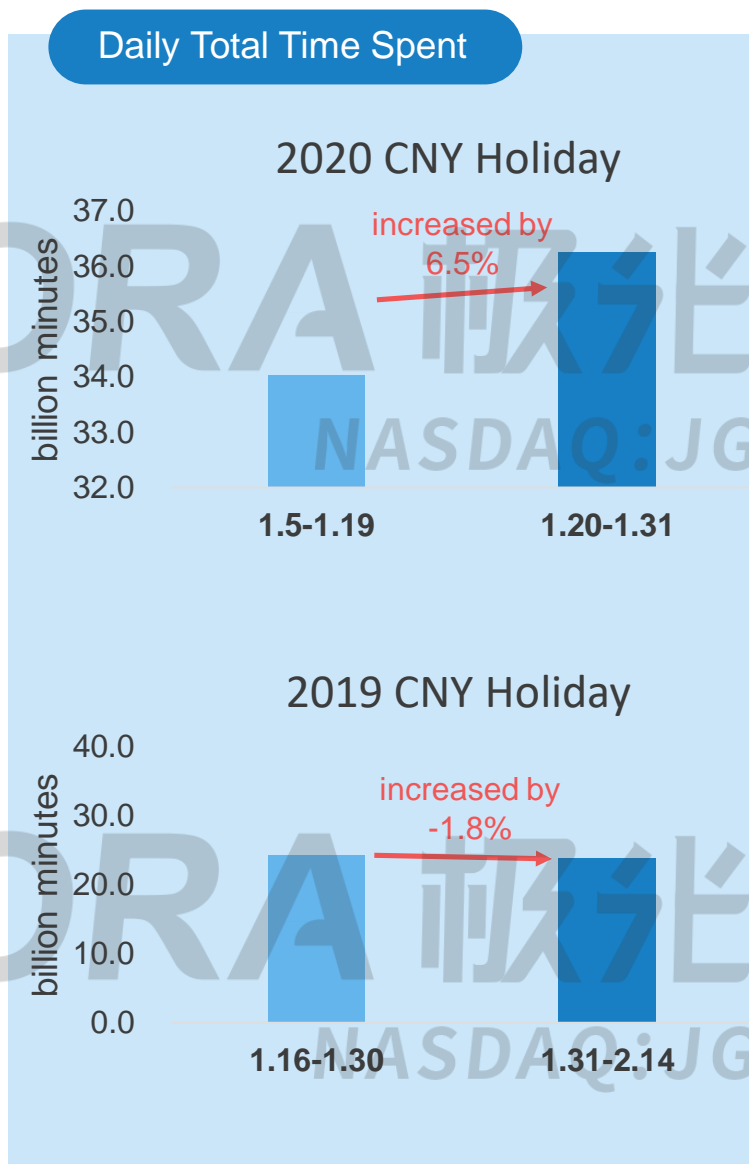
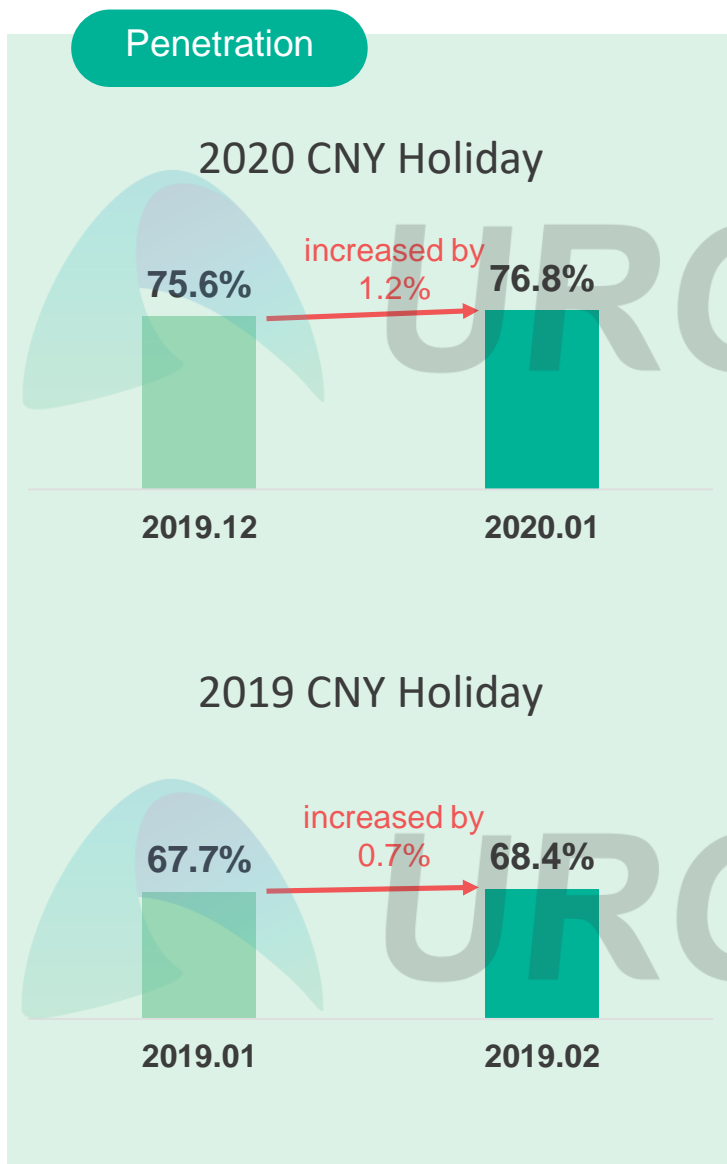
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Online Video Industry Analysis

Online video apps benefited from the coronavirus outbreak as users were stuck at home to watch videos in order to kill time.

- Penetration - Install base went up even though there is increasing competition from short video apps.
- Daily Total Time Spent - Contrary to last year, people spent more time on live streaming apps during the CNY holiday this year.

Penetration and Total Time Spent: Online Video Apps

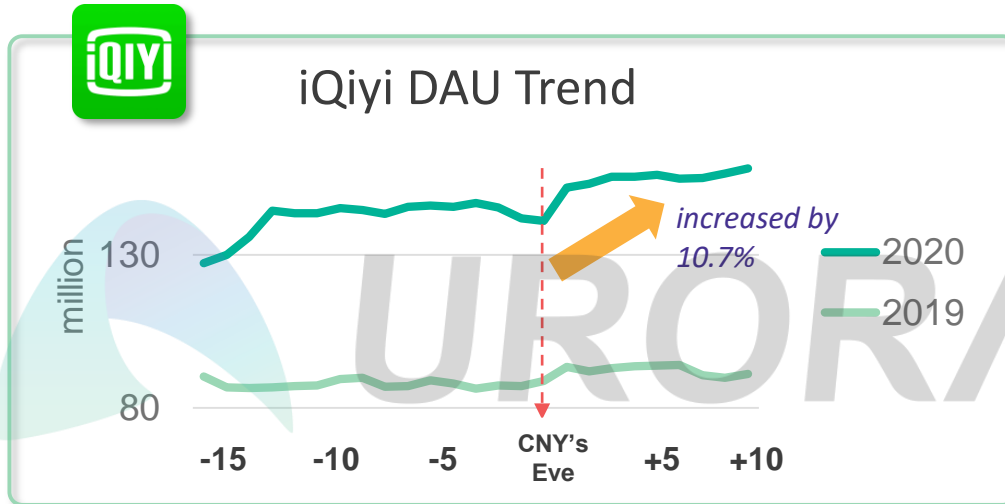


Source : Aurora Mobile, NASDAQ: JG

Data Period : 2019.1-2020.2

Online Video Apps Performance

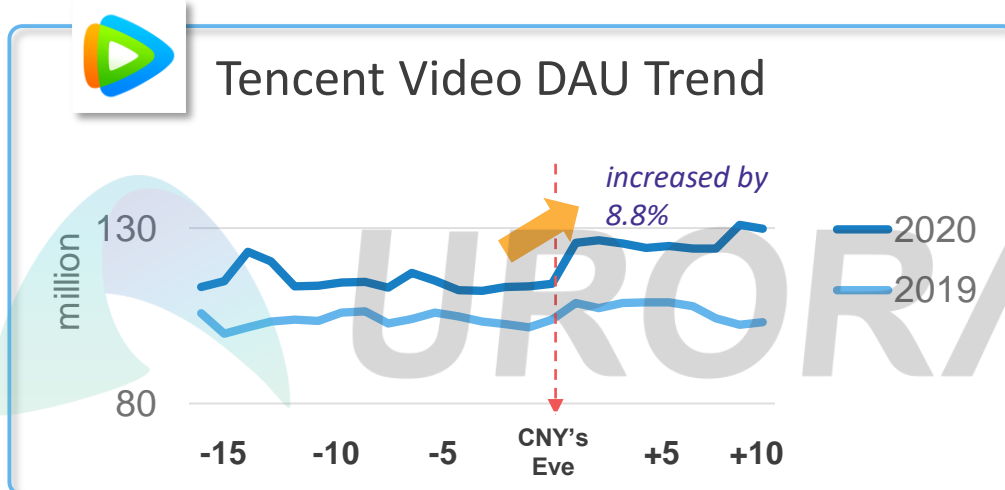
iQiyi's DAU went up most during the 2020 CNY holiday. The daily time spent of iQiyi almost caught up with Tencent Video. The top online video apps all attained substantial growth.



**The CNY Holiday
iQiyi
Daily Time Spent**

2020 99.3 mins

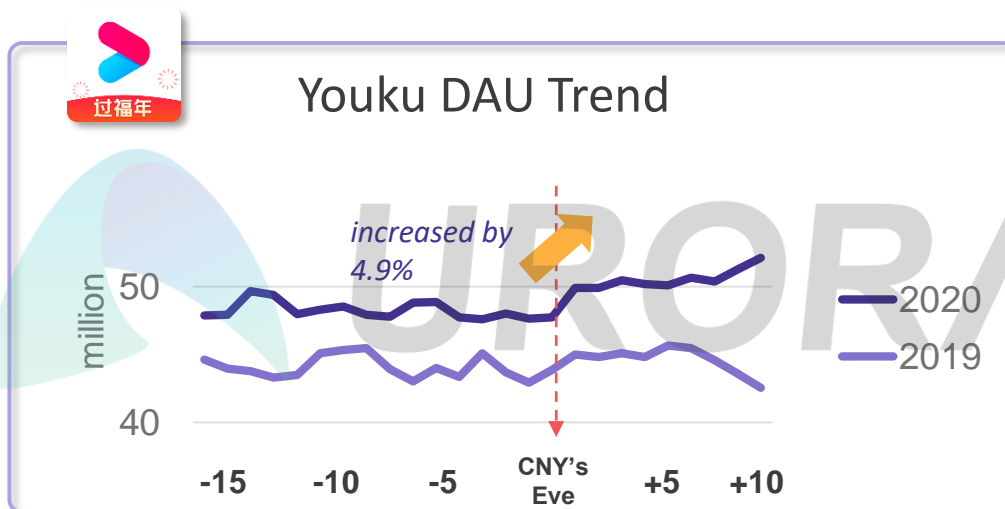
2019 91.6 mins



**The CNY Holiday
Tencent Video
Daily Time Spent**

2020 100.5 mins

2019 82.8 mins



**The CNY Holiday
Youku
Daily Time Spent**

2020 67.4 mins

2019 64.3 mins

Source : Aurora Mobile, NASDAQ: JG

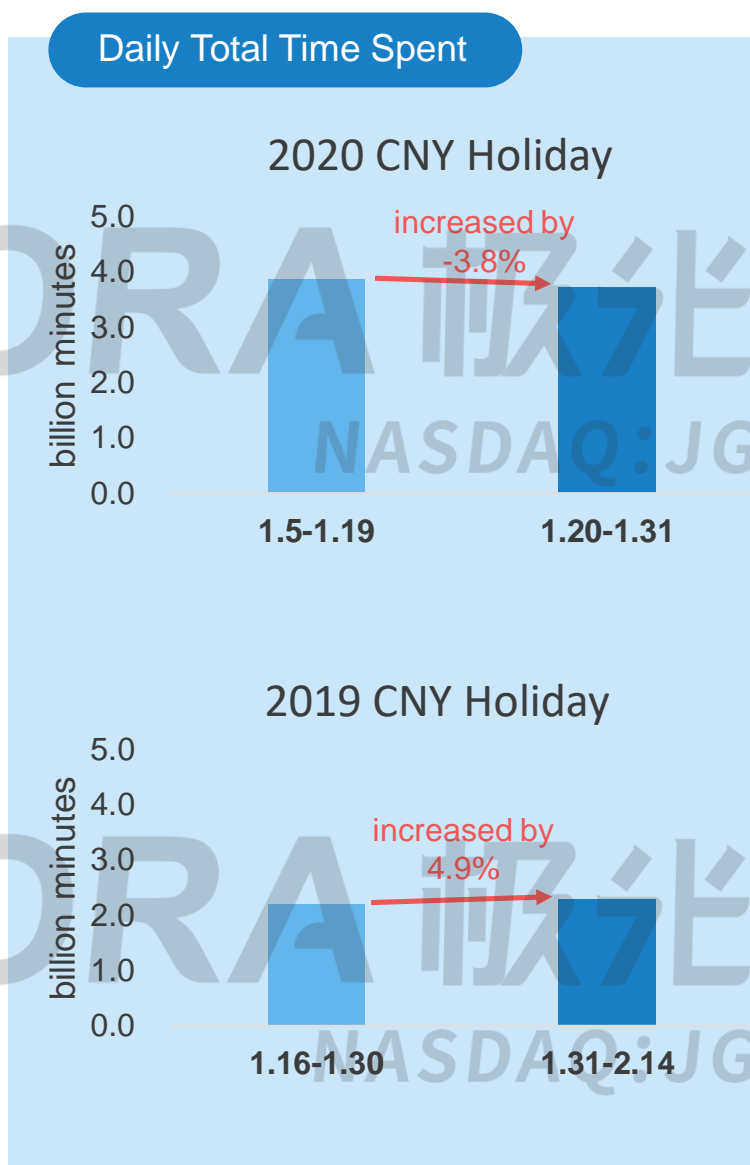
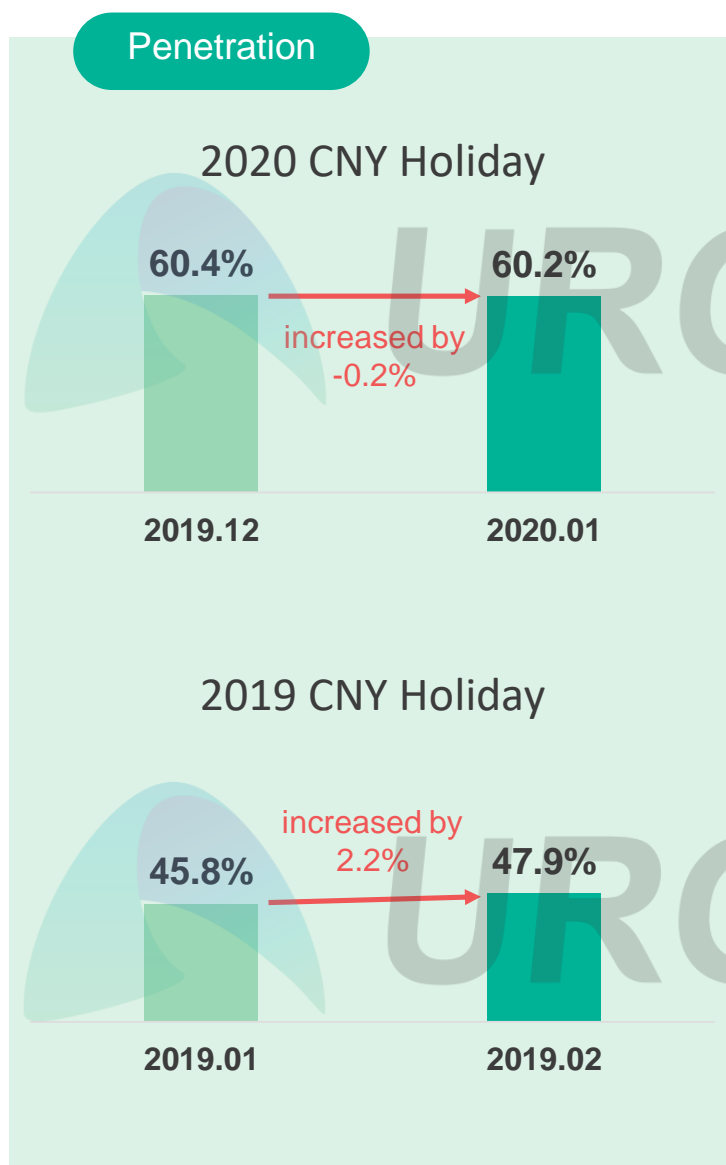
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Online Education Industry Analysis

Online education apps remained flat as students are on vacation during the CNY holiday.

- Install base of online education apps remained flat but 10% more on average compared with last year.
- Daily Total Time Spent decreased by 3.8%.

Penetration and Total Time Spent: Online Education Apps

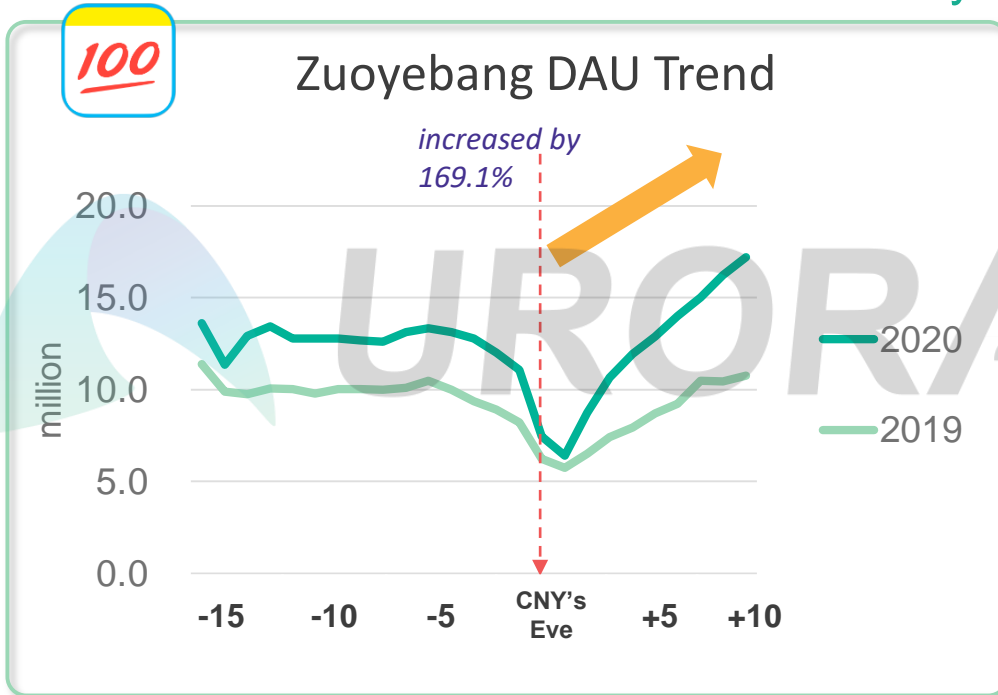


Source : Aurora Mobile, NASDAQ: JGD

Data Period : 2019.1-2020.2

Online Education Apps Performance

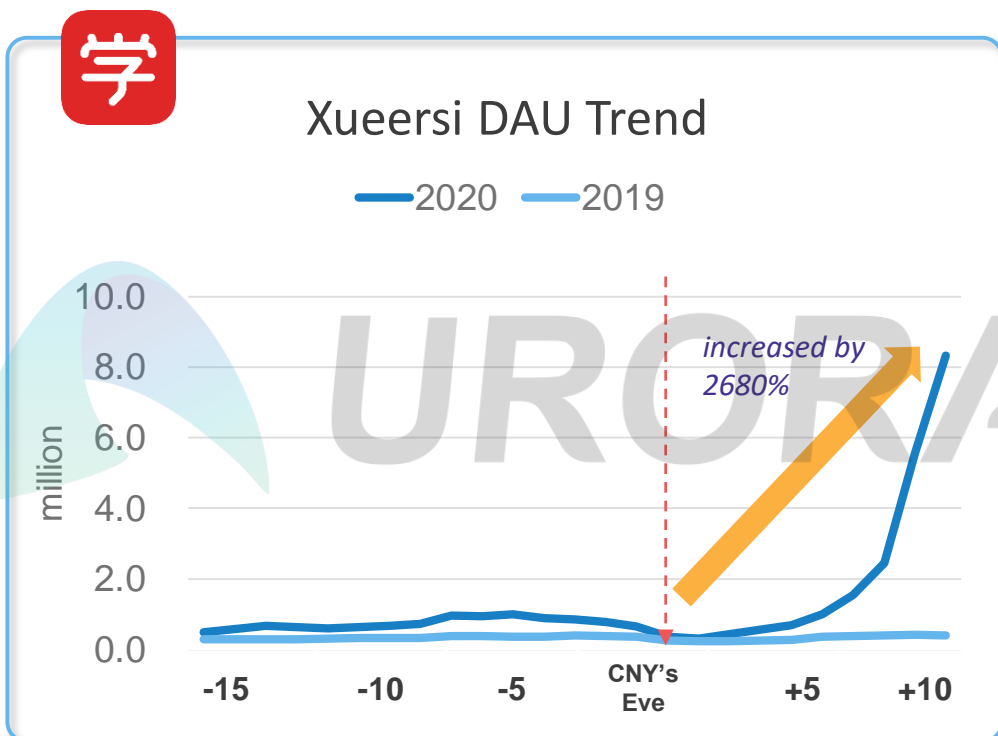
Top online education apps had impressive performance and rebounded fiercely after the holiday. Students were forced to learn online. As a result, Zuoyebang DAU increased almost threefold while Xueersi DAU increased by 16 times!



The CNY Holiday Zuoyebang Daily Time Spent

2020 19.2 mins

2019 16.8 mins



The CNY Holiday Xueersi Daily Time Spent

2020 10.4 mins

2019 15.7 mins

Source : Aurora Mobile, NASDAQ: JG

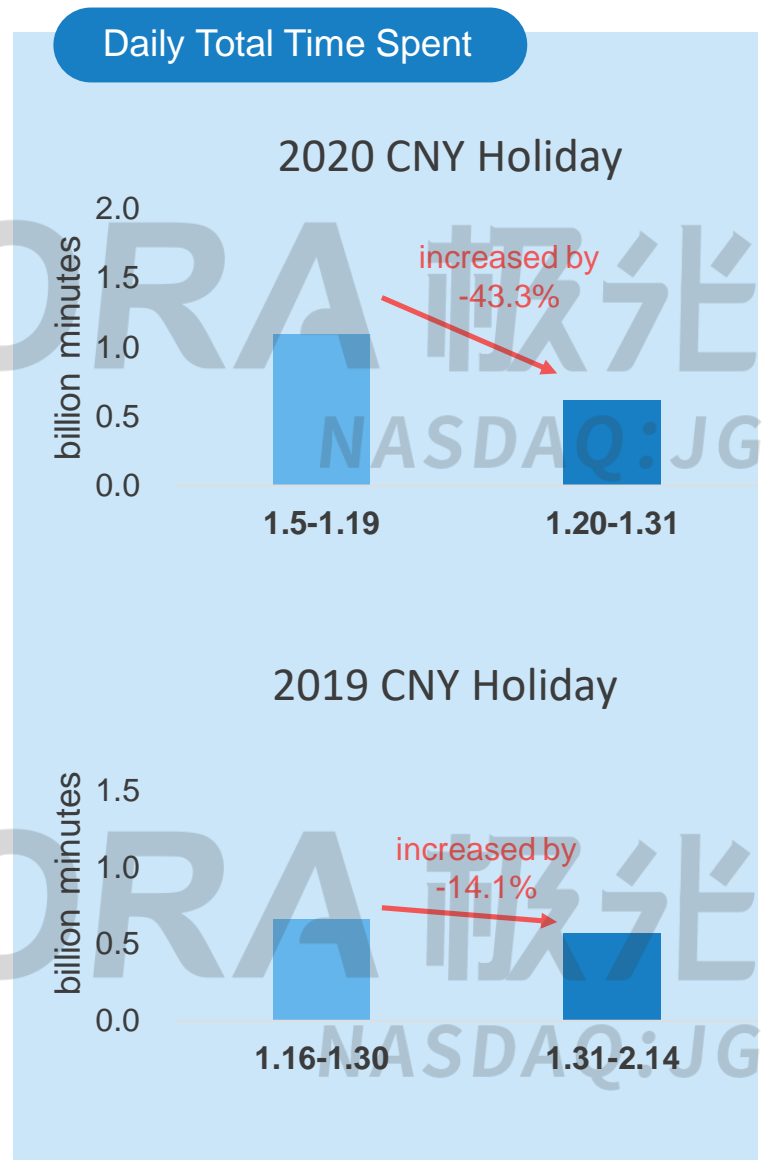
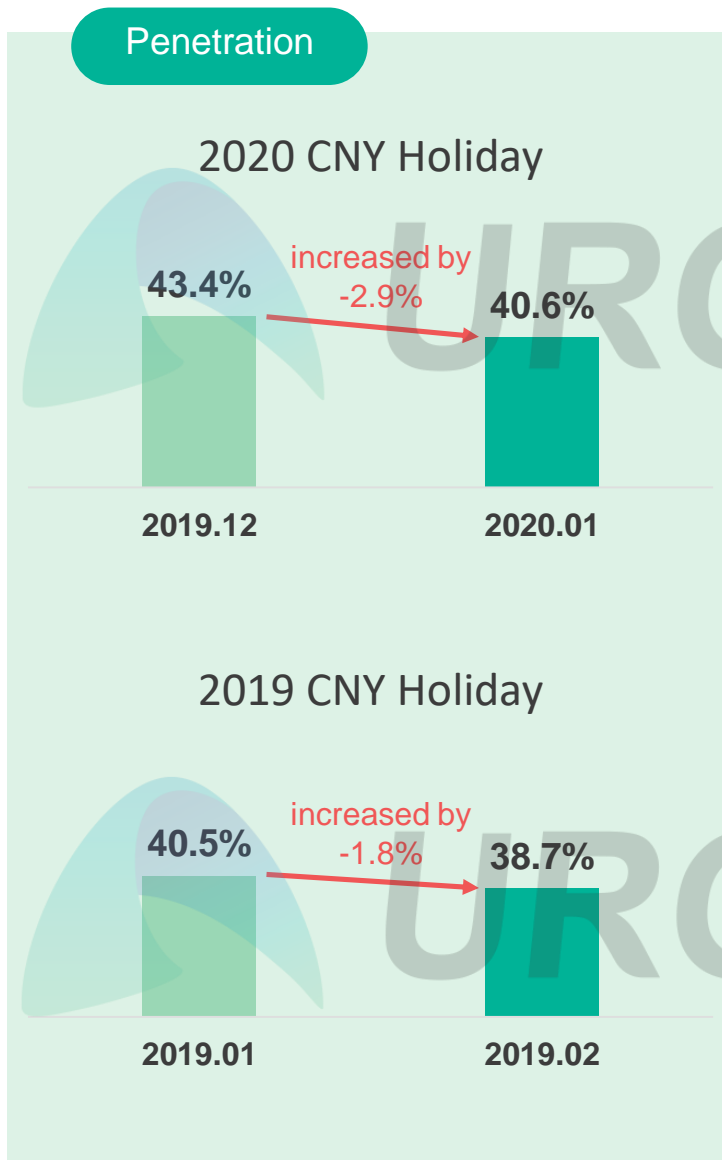
*Using CNY's Eve as base day and make year-to-year comparison, DAU Data period 2019.1.20-2019.2.13, 2020.1.9-2020.2.2; increase/decrease rates are the rates compared with peak/bottom

Online to Offline Industry Analysis

Seasonal downturn and coronavirus outbreak combined hurt the online to offline industry

- Penetration- Install base of online to offline apps usually falls to the year's low point in January. This year, penetration went down by 3% during the CNY holiday.
- Daily Total time spent- Daily time spent went down much more compared with last year impacted by the coronavirus outbreak. But users are not being lost, their demand is just temporarily suppressed. The industry should rebound soon when the coronavirus outbreak subsides.
- Though the industry is hurt by the coronavirus outbreak, they are playing an important role in fighting the disease. **Food delivery apps like Meituan/ele.me** are delivering food and vegetables to people who are in need.

Penetration and Total Time Spent: Online to offline Apps



Source : Aurora Mobile, NASDAQ: JG

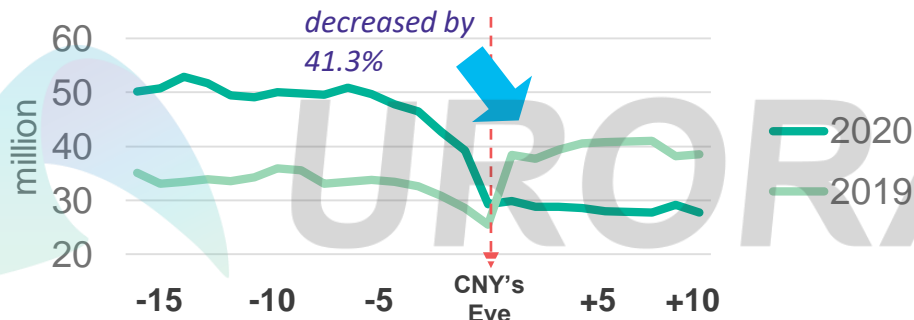
Data Period : 2019.1-2020.2

Online to Offline Apps Performance

After the CNY holiday, many food delivery workers cannot return to workplace and many restaurants are still closed. In fear of cross infection, fewer people ordered food. The industry should be impacted in the short term. However, Ele.me has a platform that also delivers fresh food perhaps leading it to rebounded a bit.

美团

Meituan DAU Trend



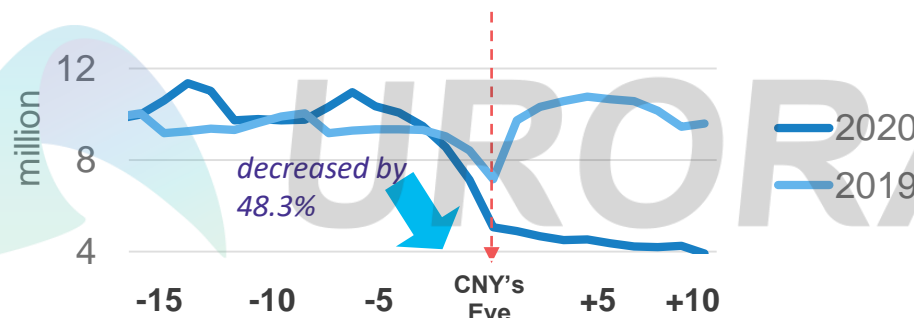
The CNY Holiday
Meituan
Average Daily Sessions

2020 2.2 times

2019 2.4 times



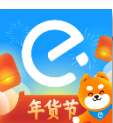
Dianping DAU Trend



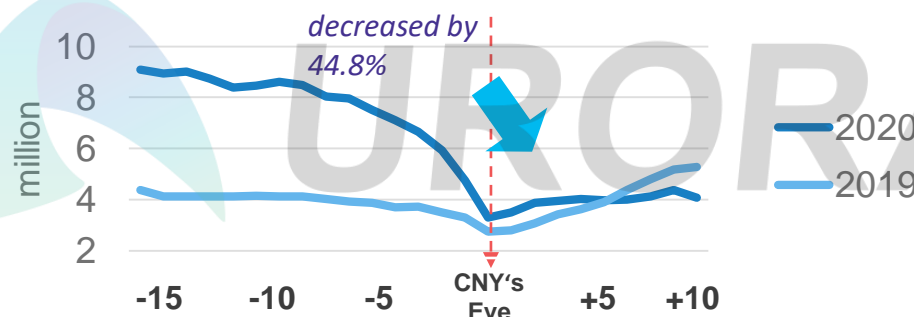
The CNY Holiday
Dianping
Average Daily Sessions

2020 1.9 times

2019 2.5 times



Ele.me DAU Trend



The CNY Holiday
Ele.me
Average Daily Sessions

2020 2.1 times

2019 2.1 times

Source : Aurora Mobile, NASDAQ: JG

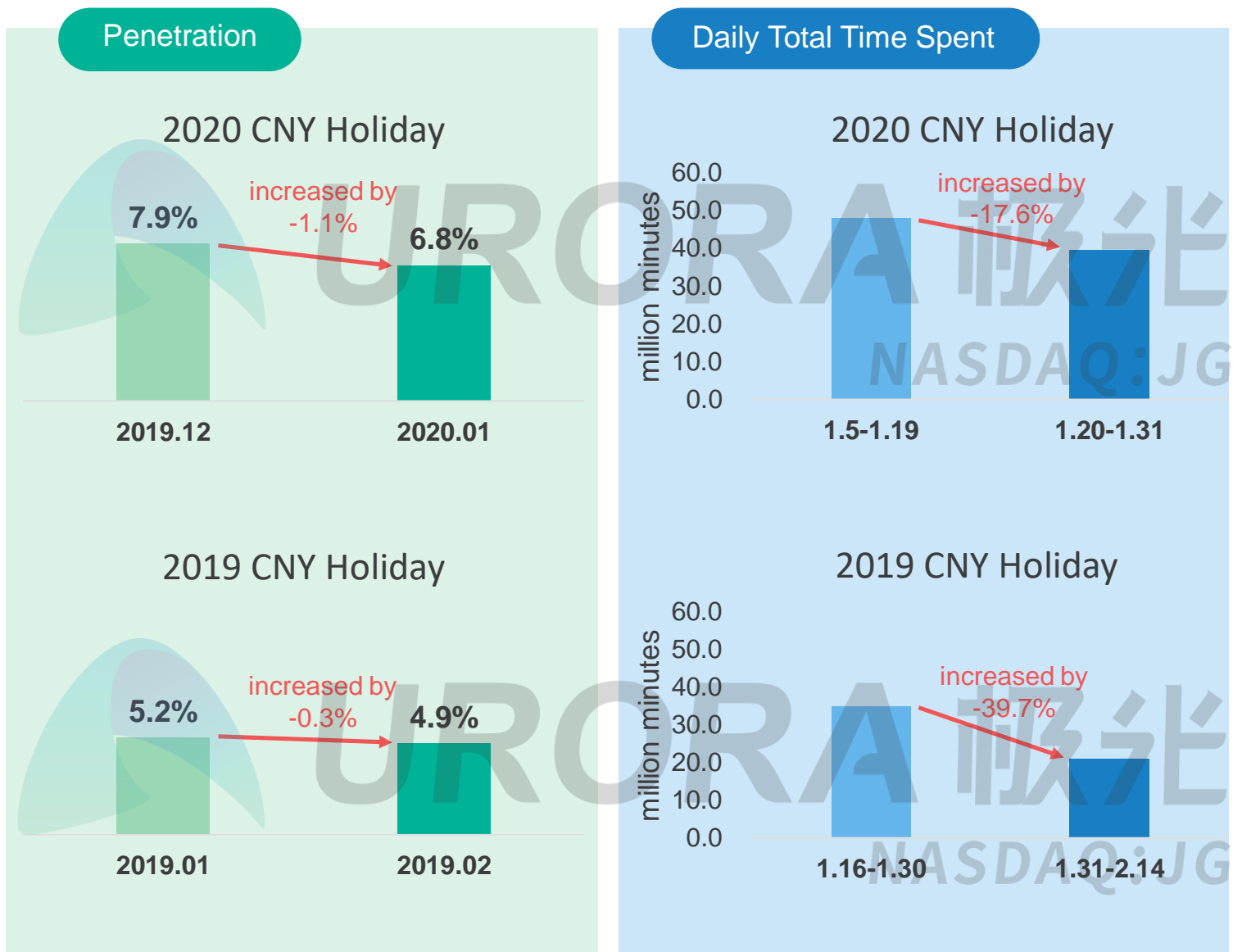
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Fresh Food E-Commerce Industry Analysis

Affected by the lack of delivery workers, the fresh food e-commerce industry usually reaches its lows during the CNY holiday. But this year, the disease outbreak forced people to buy fruits and vegetables online, offsetting the seasonal downturn.

- Penetration- Install base of fresh food e-commerce went down by 1.1%.
- Daily Total time spent- Daily time spent decrease by 17.6% during the holiday, which is much better compared with nearly 40% decrease last year. People were forced to buy fresh food online partially offsetting the seasonal factor.

Penetration and Total Time Spent: Fresh Food E-Commerce Apps

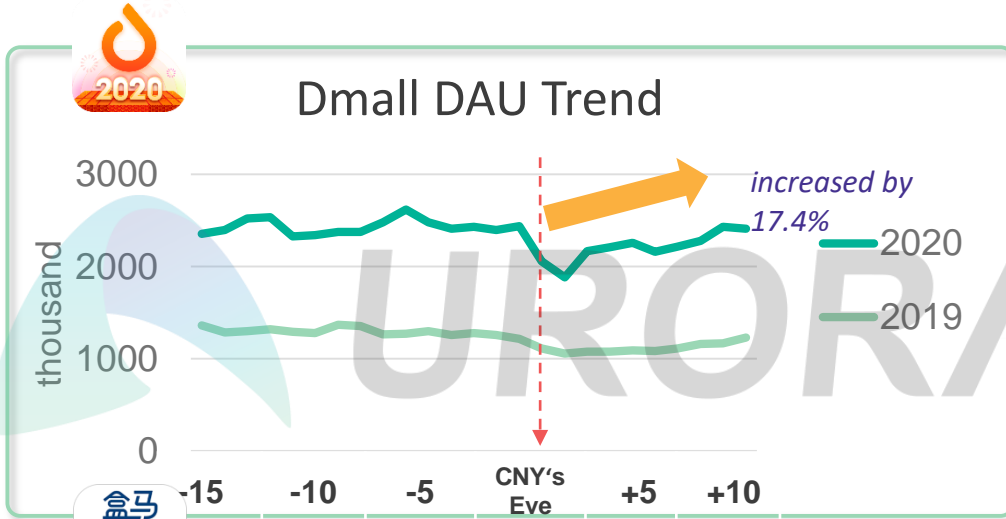


Source : Aurora Mobile, NASDAQ: JG

Data Period : 2019.1-2020.2

Fresh Food E-Commerce Apps Performance

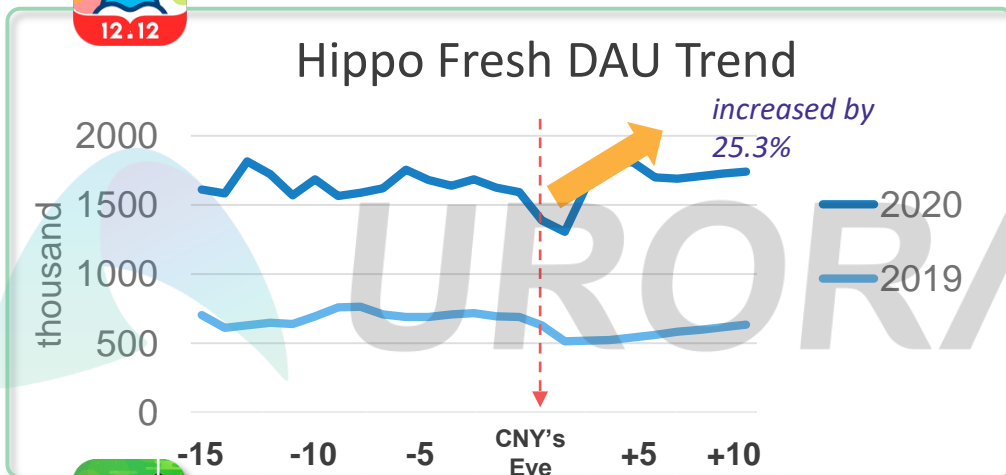
After the CNY holiday, most fresh food E-Commerce apps rebounded. Main reason is that due to the infectious disease outbreak, fewer people go to the market for fresh food shopping. Thus, fresh food shopping on these apps and cooking at home became a preferred choice



The CNY Holiday Dmall Average Daily Sessions

2020 2.0 times

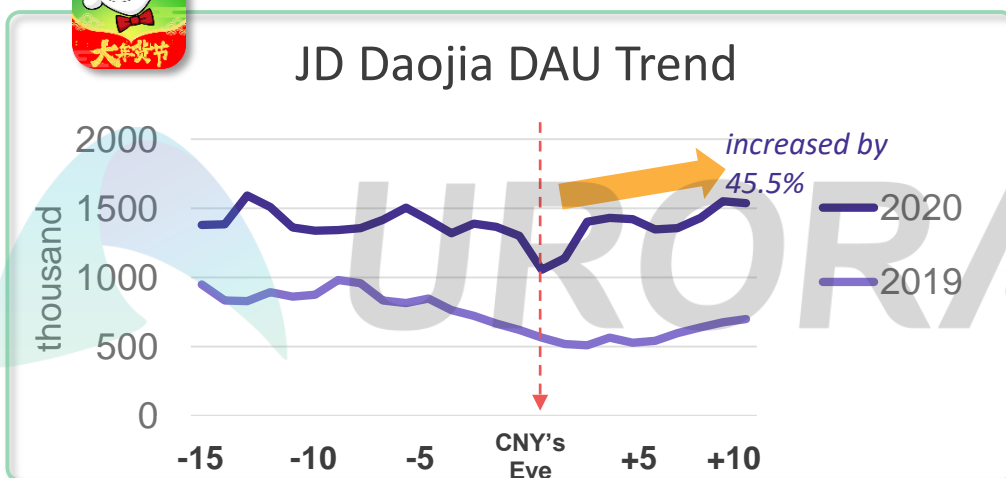
2019 1.9 times



The CNY Holiday Hippo Fresh Average Daily Sessions

2020 2.0 times

2019 1.9 times



The CNY Holiday JD Daojia Average Daily Sessions

2020 2.0 times

2019 1.5 times

Source : Aurora Mobile, NASDAQ: JG

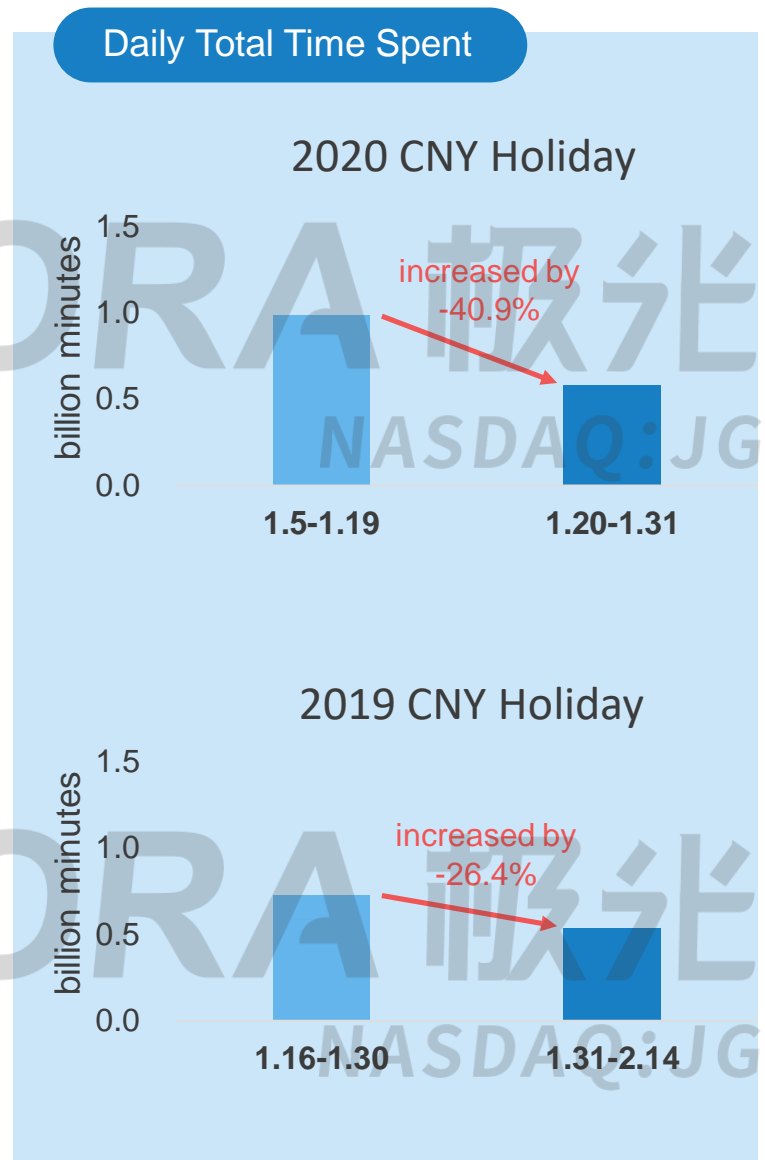
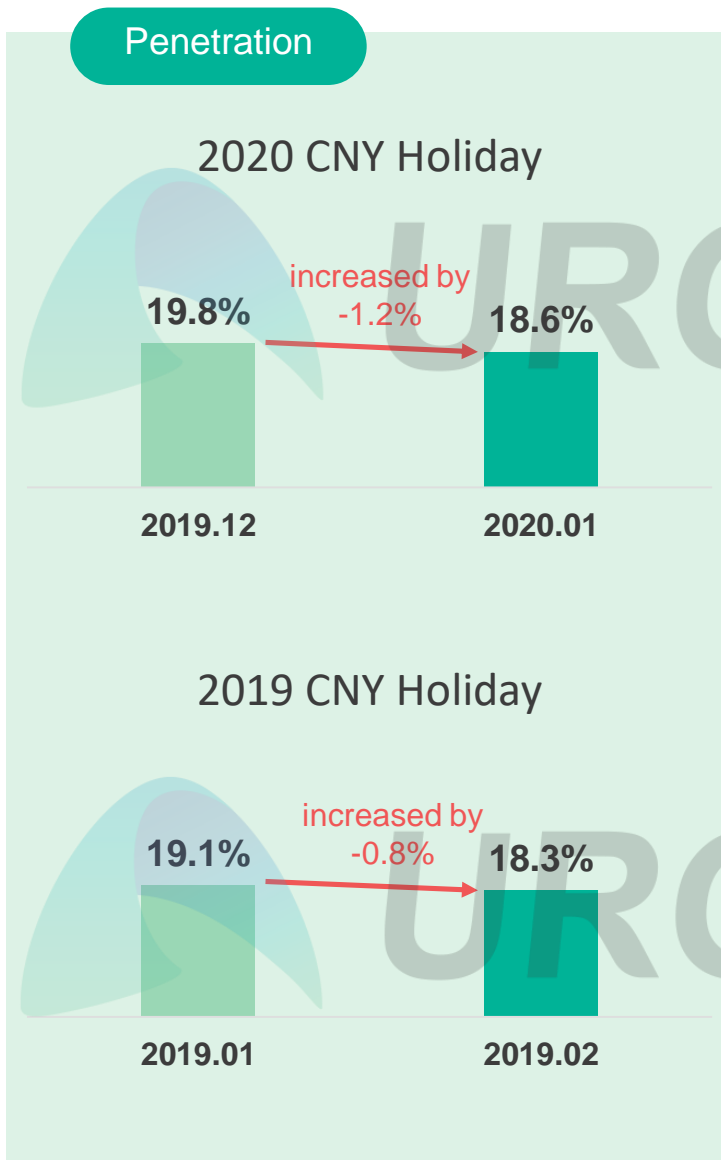
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Ride Sharing Industry Analysis

It is restricted by the government to leave your home, so demand for ride sharing decreased sharply. Daily time spent decreased a lot

- Normally, the ride sharing industry is less impacted by seasonal factors and holidays
- However, it has been severely affected by the disease outbreak. Daily time spent went down by 40.9%.
- Although it is hurt by the disease outbreak, many ride sharing platforms are helping fight against the disease. For example, Didi is giving free rides to people who are in need.

Penetration and Total Time Spent: Ride Sharing Apps

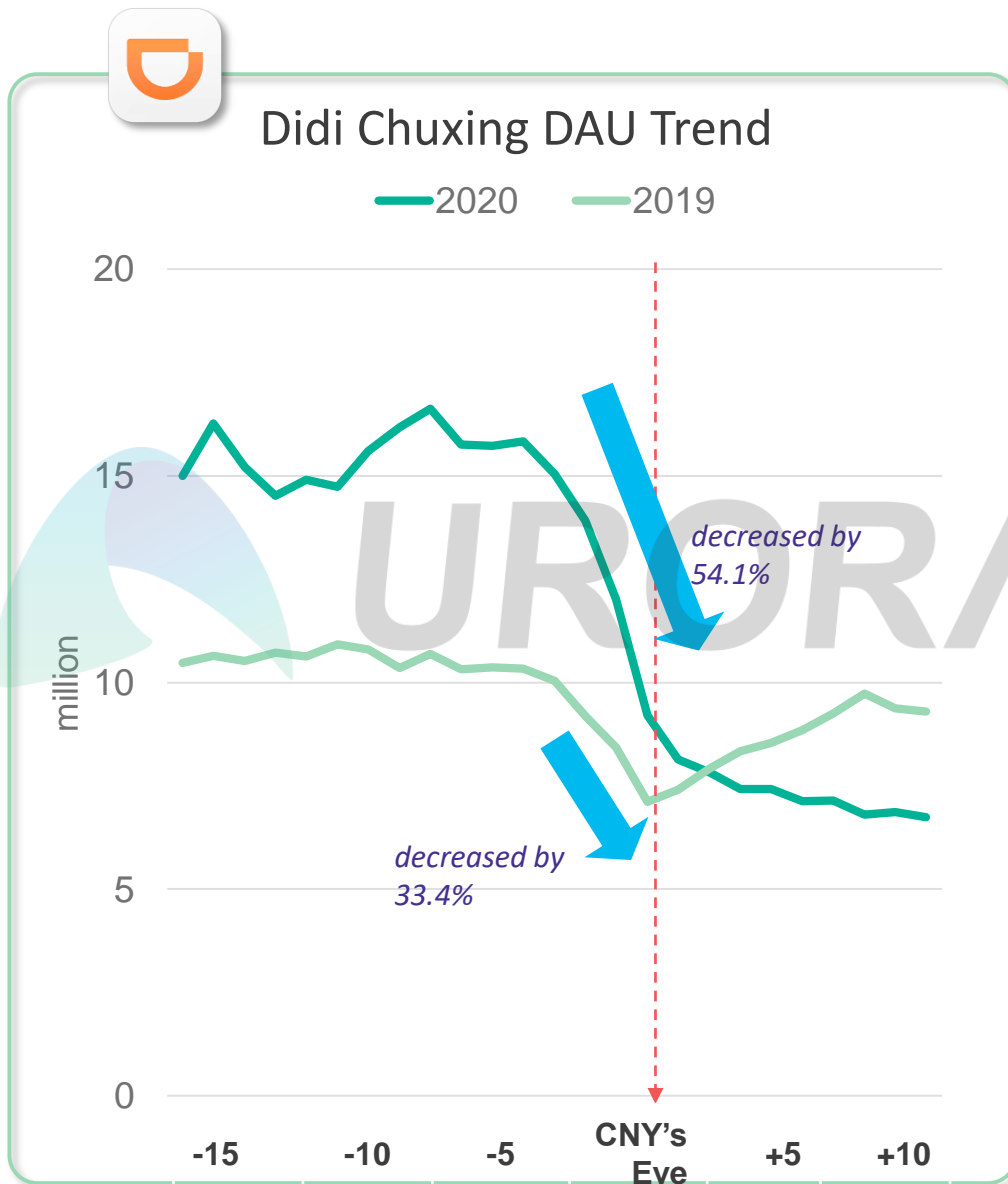


Source : Aurora Mobile, NASDAQ: JG

Data Period : 2019.1-2020.2

Ride Sharing Apps Performance

Didi Chuxing's DAU slumped after the CNY holiday as the spread of the disease showed no signs of slowdown. Fewer people go out and more people work at home leading to a sharp decrease of ride sharing demand. It is hard for Didi's DAU to improve in the short run. But it is believed that the demand will resume once the disease outbreak subsides.



**The CNY Holiday
Didi Chuxing
Average Daily Sessions**

2020 2.1 times

2019 2.4 times

Source : Aurora Mobile, NASDAQ: JG

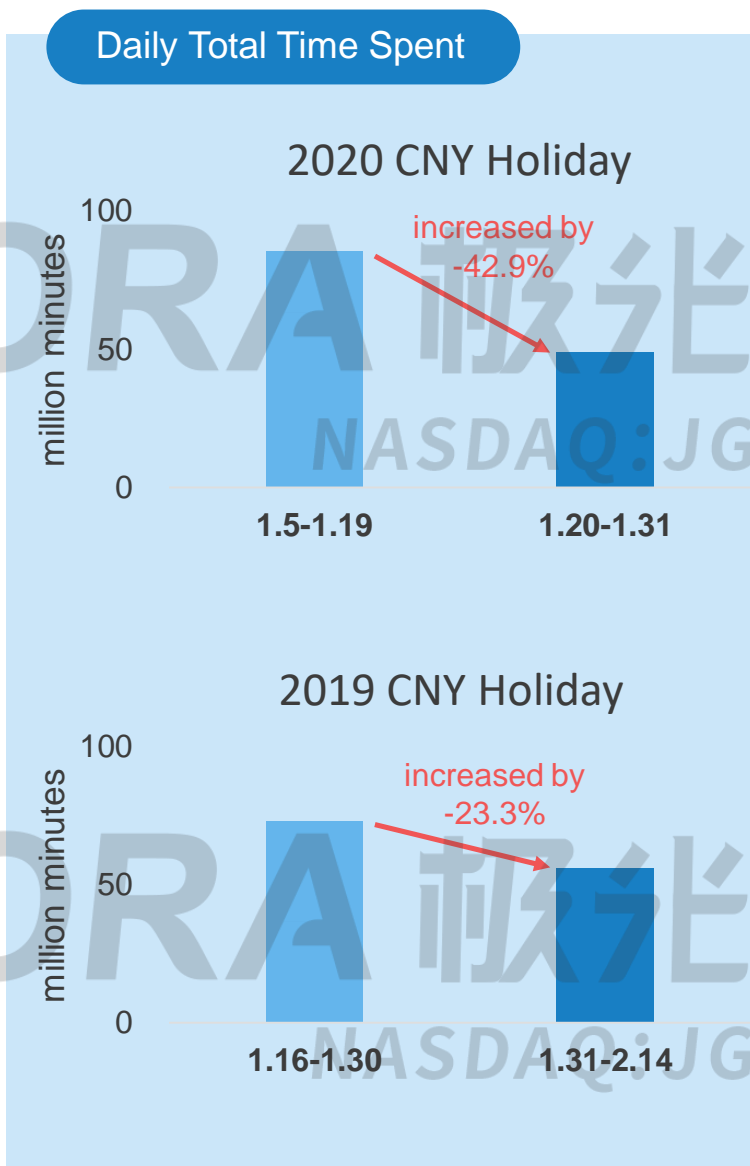
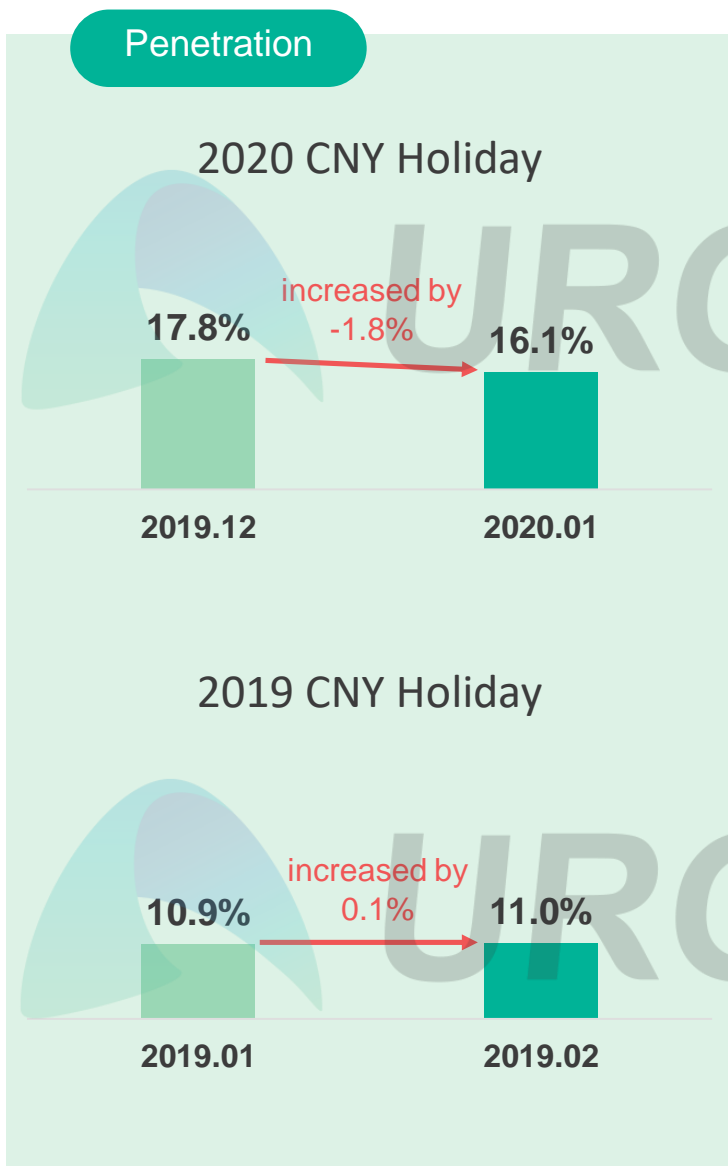
*Using CNY's Eve as base day and make year-to-year comparison, DAU Data period 2019.1.20-2019.2.13, 2020.1.9-2020.2.2; increase/decrease rates are the rates compared with peak/bottom

Public Transportation Industry Analysis

Public transportation industry app usage has declined significantly, as the disease outbreak exacerbated the seasonal trends.

- Penetration- Install base of public transportation apps showed a downward trend in the beginning of 2020 and decreased 2% during the CNY holiday
- Daily Total Time Spent- Affected by the disease, daily time spent fell by 42.9%

Penetration and Daily Time Spent: Public Transportation Apps

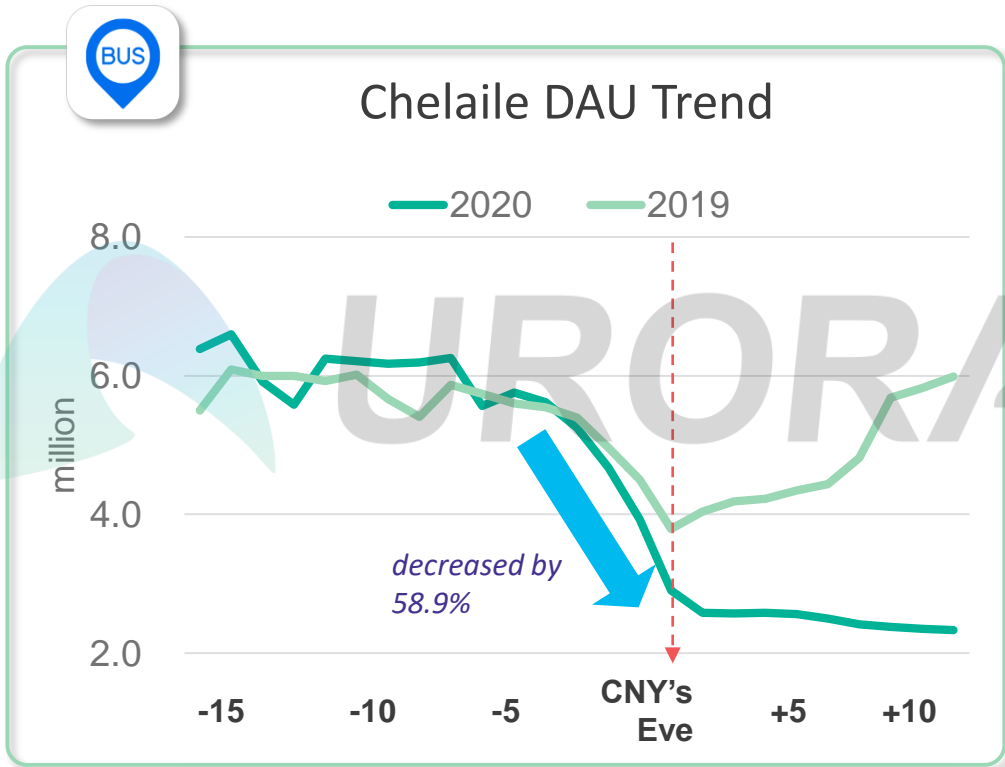


Source : Aurora Mobile, NASDAQ: JG

Data Period : 2019.1-2020.2

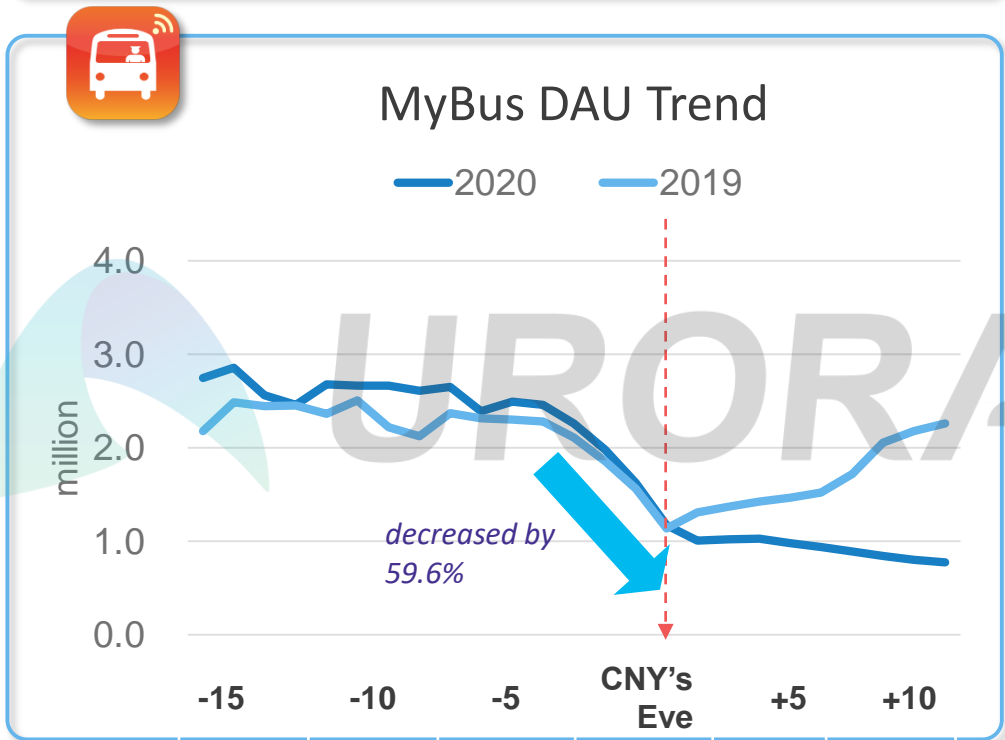
Public Transportation Apps Performance

Due to the prolonged coronavirus outbreak, demand for public transportation slid during the CNY holiday and did not rebound afterwards like last year.



**The CNY Holiday
Chelaile
Daily Sessions**

2020	2.5 times
2019	2.8 times



**The CNY Holiday
MyBus
Daily Sessions**

2020	2.6 times
2019	3.3 times

Source : Aurora Mobile, NASDAQ: JG

*Using CNY's Eve as base day and make year-to-year comparison, DAU Data period 2019.1.20-2019.2.13, 2020.1.9-2020.2.2; increase/decrease rates are the rates compared with peak/bottom

Disclaimer

1. Data Source

a) Aurora Mobile (NASDAQ:JG). Data collected from developer services and processed by our data processing platform which utilizes AI and machine learning technologies to conduct modeling exercises and data mining

b) Data and information collected legally from other sources. All data we collected comply with the laws and regulations relating to the protection of personal information. Original mobile behavioral data are cleansed, structured and encrypted to be organized into a big data analysis report.

2. Data Period

2019.1-2020.2

3. Data Definition

Please refer to the footnotes.

4. Disclaimer

Data in this report is collected and generated by sampling for big data, focus group surveys, data modeling and other data estimation techniques and has its limitations. It is only for reference, we do not represent it is accurate, complete, applicable and no infringement. And it should not be relied on as such. We accept no liability or responsibility to any person or institute as a consequence of any reliance upon the information contained in this report.

5. Other Disclaimer

Aurora Mobile Big Data Institute will further utilize our data mining tools to gain insights of more industries and generate detailed reports.

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About Aurora Mobile

Aurora Mobile Limited (NASDAQ: JG) ("Aurora" or the "Company") Founded in 2011, is a leading mobile big data solutions platform in China. The Company's developer services easily integrate with all types of mobile apps and provide core in-app functionalities needed by developers, including push notification, instant messaging, analytics, sharing and short message service (SMS). Up to September of 2019, the number of mobile apps utilizing at least one of our developer services, or the cumulative app installations, reached 1.39 million; The cumulative SDK installations reached 30.8 billion; The number of monthly active unique mobile devices we cover reached 1.34 billion.

We have developed a variety of data solutions that offer industry-specific, actionable insights for customers include Targeted marketing ("XiaoGuoTong"), Financial risk management, Market intelligence, Location-based intelligence ("iZone").

We are also in the process of developing and launching new data solutions that will further leverage our data and insights to increase productivity for additional industries and customers.

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For developers , by developers



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