Neighborhood and Covid-19 Risk

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Introduction-Objectives:

Since the first case is reported on 11 March 2021 Turkey, COVID-19 continues to influence the health and wellbeing of Turkish populace. Health authorities of Turkey shares information on number and conditions of COVID-19 cases only regarding the region (Anatolian Region, Mediterranean Region etc.) and province (Istanbul, Ankara etc.). However, Turkish authorities do not share any case reports based on local information of neighbourhoods and districts. The information based on prevalence of COVID-19 cases in locations can be accessible with tablets and phones via an application named HES (Life fits at Home) which is published on iOS and Android in April 2020. The application states density mapping method is used rather than point mapping method. This density data is only reported on a map of Turkey using different colour indications for different COVID-19 case densities such as red being the highest risk. As a disadvantage for users, they cannot see previous daily data and users cannot subset any data as weekly or monthly. They can only view the data of the current day.

Methodology:

On the other hand, our team developed a new risk scoring method using a visual processing on self-collected and HES provided data. This method has the advantage of providing the user any previous or current data and it is categorized daily, weekly or monthly. Also, the new model separates the city of Istanbul into tiles and groups of tiles represent either districts or neighbourhoods of Istanbul. There are two risk indicators for neighbourhoods. One of them is the “Red Risk” which is obtained with the average of high (red coloured tile) and medium (yellow coloured tile) risk tiles. The other one is the “Combined Risk” and the average risk of every tile within the local area is considered.

Conclusions:

In conclusion, the application HES designed by the Ministry of Health of Turkey does not provide previous data or splitting them as weekly or monthly data but in our online model users can advantageously reach and previous or new data daily, weekly or monthly for neighborhoods of Istanbul.

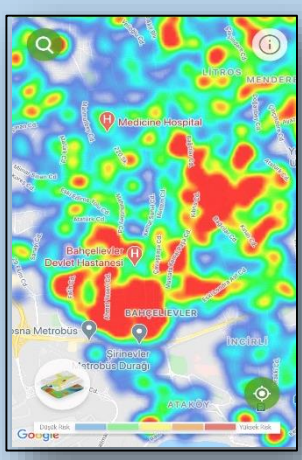
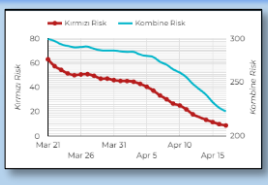
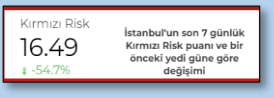


Figure-1:Density map from HES application





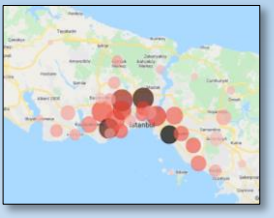


Figure-2:Images from our model

Tablo: İlçelerin **son 14 günlük** risk skor ortalamalarını ve bir önceki 14 güne göre değişimlerini gösterir.

	İlçe	Kırmızı Risk	% Δ	Kombine Risk	% Δ
1.	Kadıköy	299.41	-27.1%...	746.42	-0.5%...
2.	Kâğıthane	235.98	-38.9...	895.61	-3.6%...
3.	Bahçelievler	221.86	-40.9...	848.11	-1.0%...
4.	Gaziosmanpaşa	165.36	-44.9...	920.68	-3.2%...
5.	Şişli	165.19	-24.4...	516.58	-2.7%...
6.	Üsküdar	149.06	-36.6...	815.11	-3.9%...
7.	Bayrampaşa	135.96	-45.0...	778.3	-1.7%
8.	Güngören	108.35	-40.1...	796.86	-5.4%...
9.	Bağcılar	101.19	-53.3...	891.64	-3.2%...
10.	Ataşehir	97.1	-41.8...	576.72	-3.0%...
11.	Maltepe	97.02	-47.7...	576.87	-6.0%...
12.	Zeytinburnu	95.9	-48.6...	541.92	-4.6%...
13.	Beyoğlu	85.83	-43.3...	490.93	0.2%
14.	Ümraniye	82.9	-51.8...	686.26	-7.0%...

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