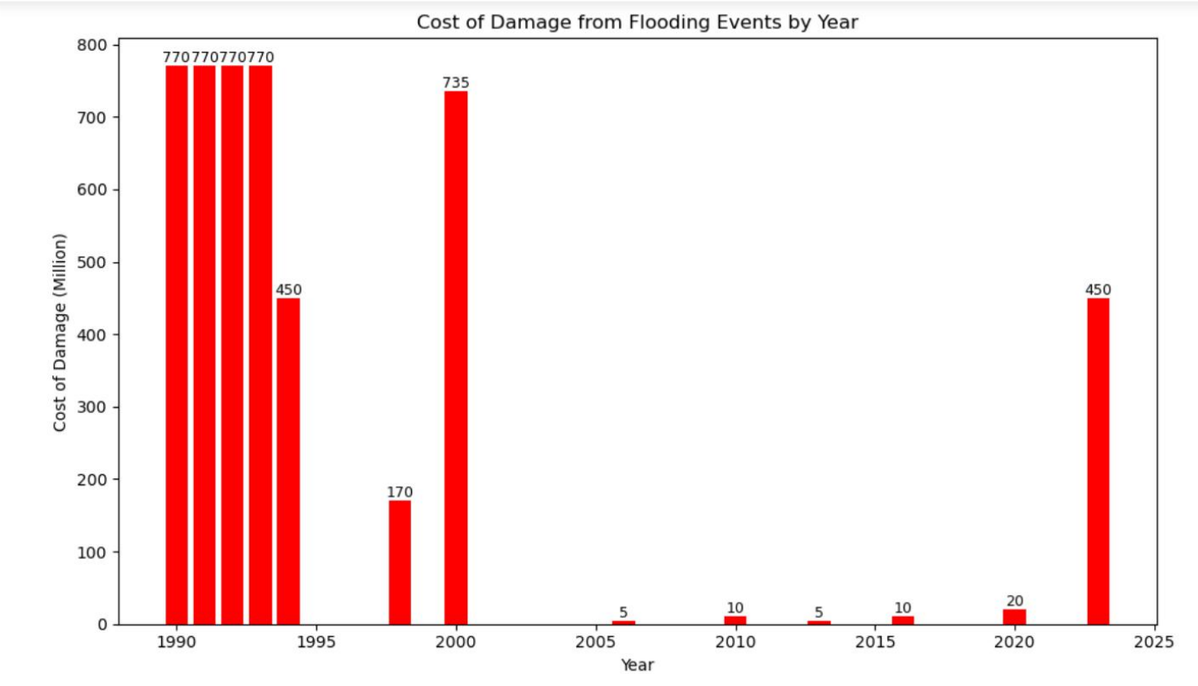
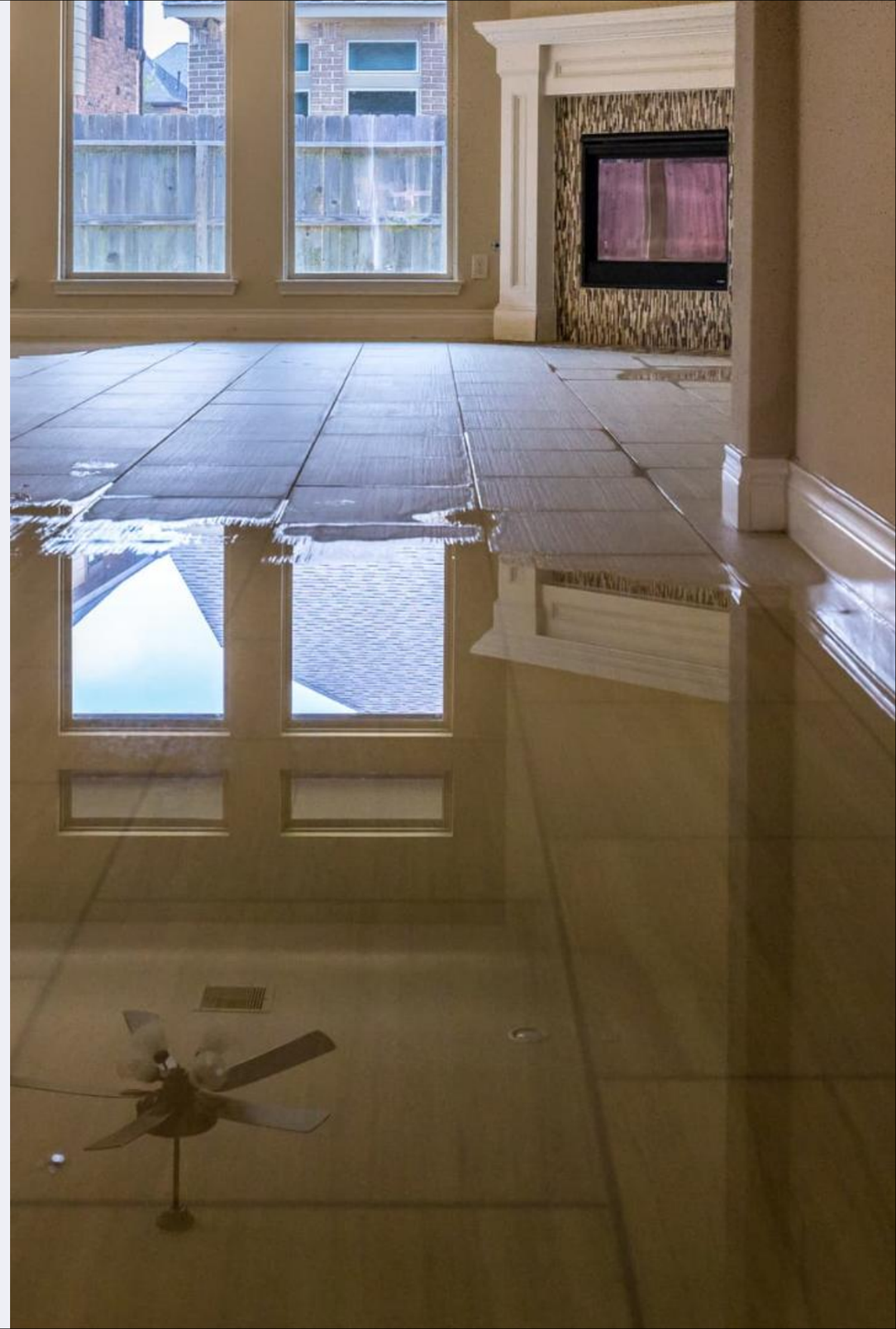
Floodings in Slovakia

Slovakia has a long history of flooding, causing immense damage to infrastructure and affecting thousands of people. In this presentation, we'll explore the extent of the damage caused by flooding, weather conditions, the anti-flooding measures in place, and the locations, rivers that have been most problematic. Also we gona have a look at future investment from EU for the anti-flooding systems.

The Cost of the Damage

Since 1990, flooding has caused €4.9 billion in damage in Slovakia. This includes the cost of repairing infrastructure like roads and bridges, as well as the loss of crops and other resources. It is clear that flooding is a major issue that needs to be addressed.





The Number of People Affected

Over the last three decades, a staggering 493,500 people have been affected by flooding in Slovakia. This number includes those who have been displaced from their homes, those who have lost their possessions, and those who have suffered injuries or worse. The impact of flooding on people's lives cannot be overstated.

Weather Patterns During Flooding

During flooding, Slovakia has experienced intense rainfall ranging from 40-100mm. These weather patterns have led to flash floods that have overwhelmed the capacity of many rivers and streams. Understanding these patterns is key to predicting and mitigating the effects of flooding in the future.

The Number of Floodings

Since 1990, Slovakia has experienced 63 floodings. The majority of these were concentrated around rivers such as Laborec, Ondava, and Vah. Understanding where flooding is most likely to occur is crucial for designing effective anti-flooding systems.

The Locations of the Floodings

Banska Bystrica

This central Slovakian city is located near the Hron River, which has caused flooding in the past.

Zilina

Located in the northwestern part of the country, Zilina has experienced multiple floodings over the last three decades.

Bratislava

The capital and largest city of Slovakia, Bratislava has faced the threat of flooding for many years due to its position on the banks of the Danube River.

Trencin

This city in western Slovakia has been hit hard by flooding over the years.

The Rivers Which Caused Most of the Floodings

Laborec

The Laborec River in eastern Slovakia has been responsible for numerous floodings, prompting the construction of anti-flooding measures in the area.

Ondava

The Ondava River has also caused significant flooding in Slovakia over the years, leading to the construction of levees, dams, and retention ponds in the area.

Vah

The Vah River, which flows through western Slovakia, is still a major concern. Construction of the anti-flooding system is ongoing, with an expected cost of €500 million.

The Cost of Anti-Flooding Systems

The Slovak government has spent over €1.5 billion on anti-flooding systems since 1990. This includes the construction of levees, dams, and retention ponds, as well as the improvement of river channels. Investment in anti-flooding measures has increased substantially over the decades, with spending of €200 million between 1990 and 2000, €500 million between 2001 and 2010, and €800 million between 2011 and 2020. This investment has been crucial for protecting people and infrastructure from flooding.

EU Funding for Anti-Flooding Projects

The Slovak government has received funding from the European Union for anti-flooding projects, particularly between 2007-2013. During this period, the EU provided €200 million for anti-flooding measures in Slovakia. This support from the EU has been vital in helping Slovakia to combat the effects of flooding.

Future Investment in Anti-Flooding Systems

The Slovak government is committed to continuing to invest in anti-flooding systems, given the likelihood of future flooding events. It is estimated that the country will need to spend an additional €1 billion on anti-flooding measures in the next 10 years to ensure the safety of its citizens.

Anti-Flooding Constructions Next to Rivers

Anti-flooding systems can take various forms, such as levees, dams, and retention ponds. Here we highlight several important systems that have been built to prevent flooding:

River	Cost (€)	Year of Construction
Laborec	200 million	1990s-2000s
Ondava	100 million	2000s
Vah	500 million	Ongoing
Danube (Slovakia)	1 billion	Underway
Hron	200 million	1990s-2000s
Nitra	100 million	2000s
Orava	500 million	Ongoing
Danube (joint project Slovakia and Hungary)	1 billion	Underway

Thank you

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GITHUB:https://github.com/michaluhrinek/Data-Analyst-Portfolio-SQL-R-Python-EXCEL/tree/main/Python-Floodings%20in%20Slovakia

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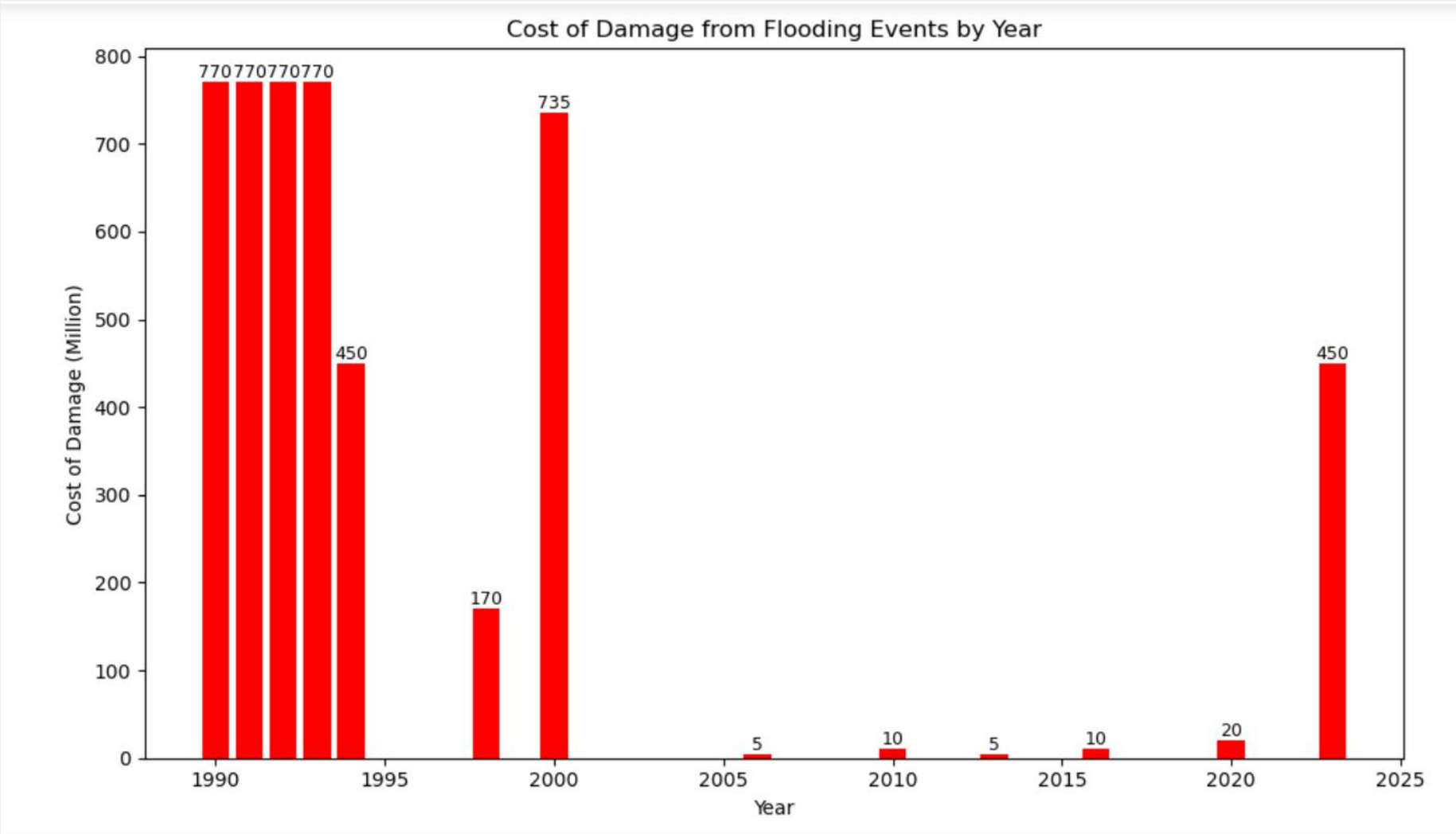
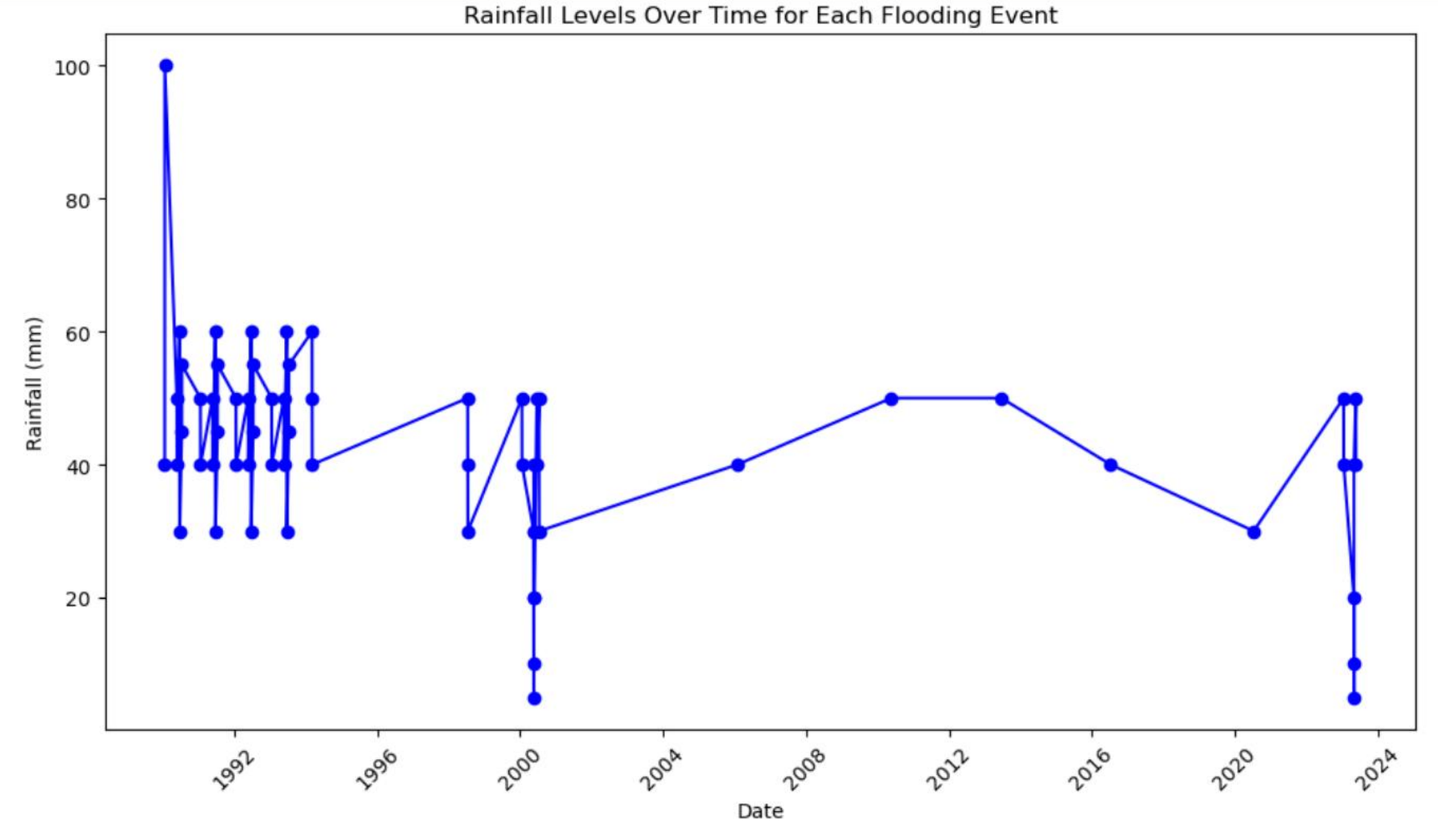
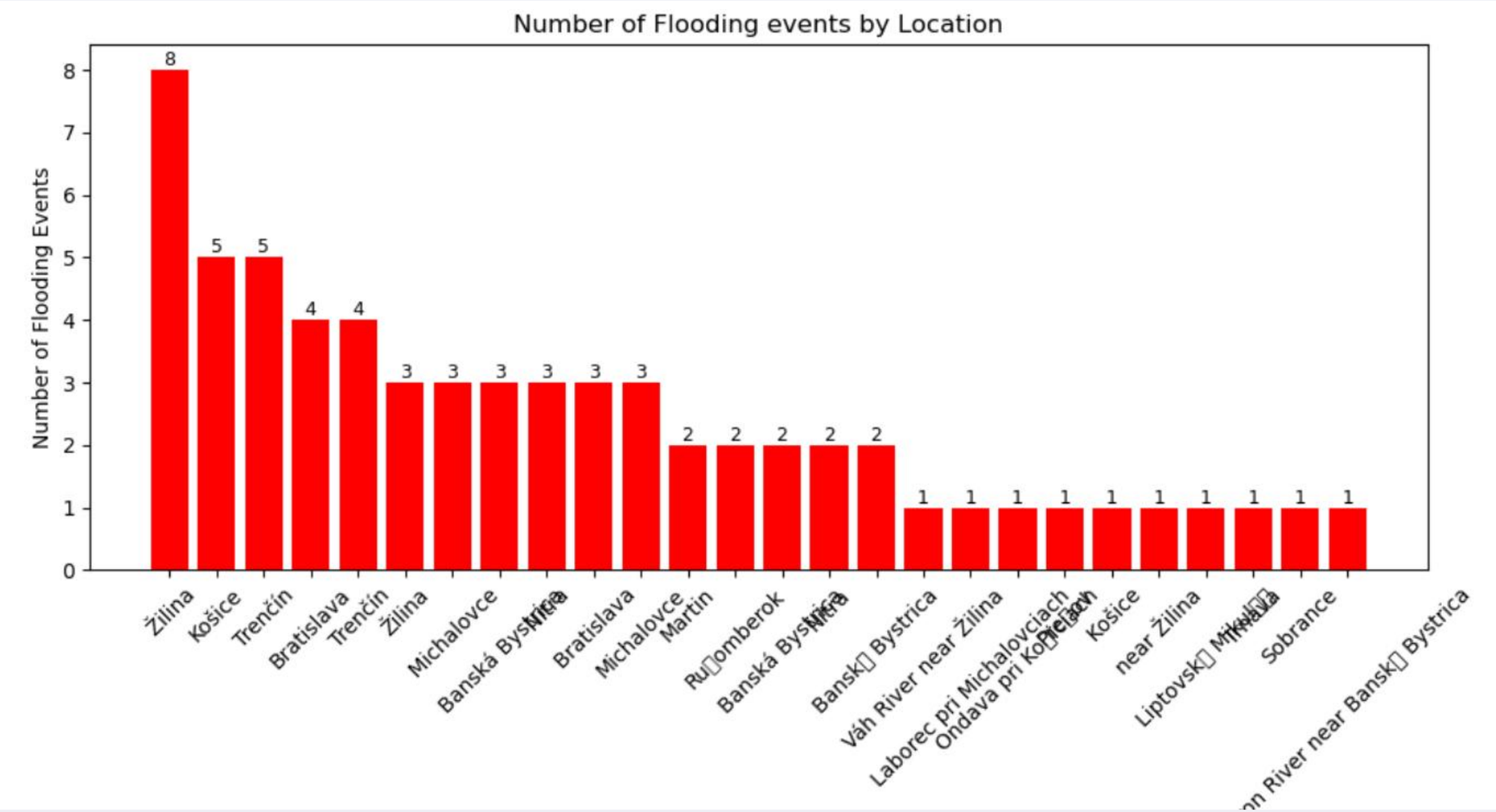
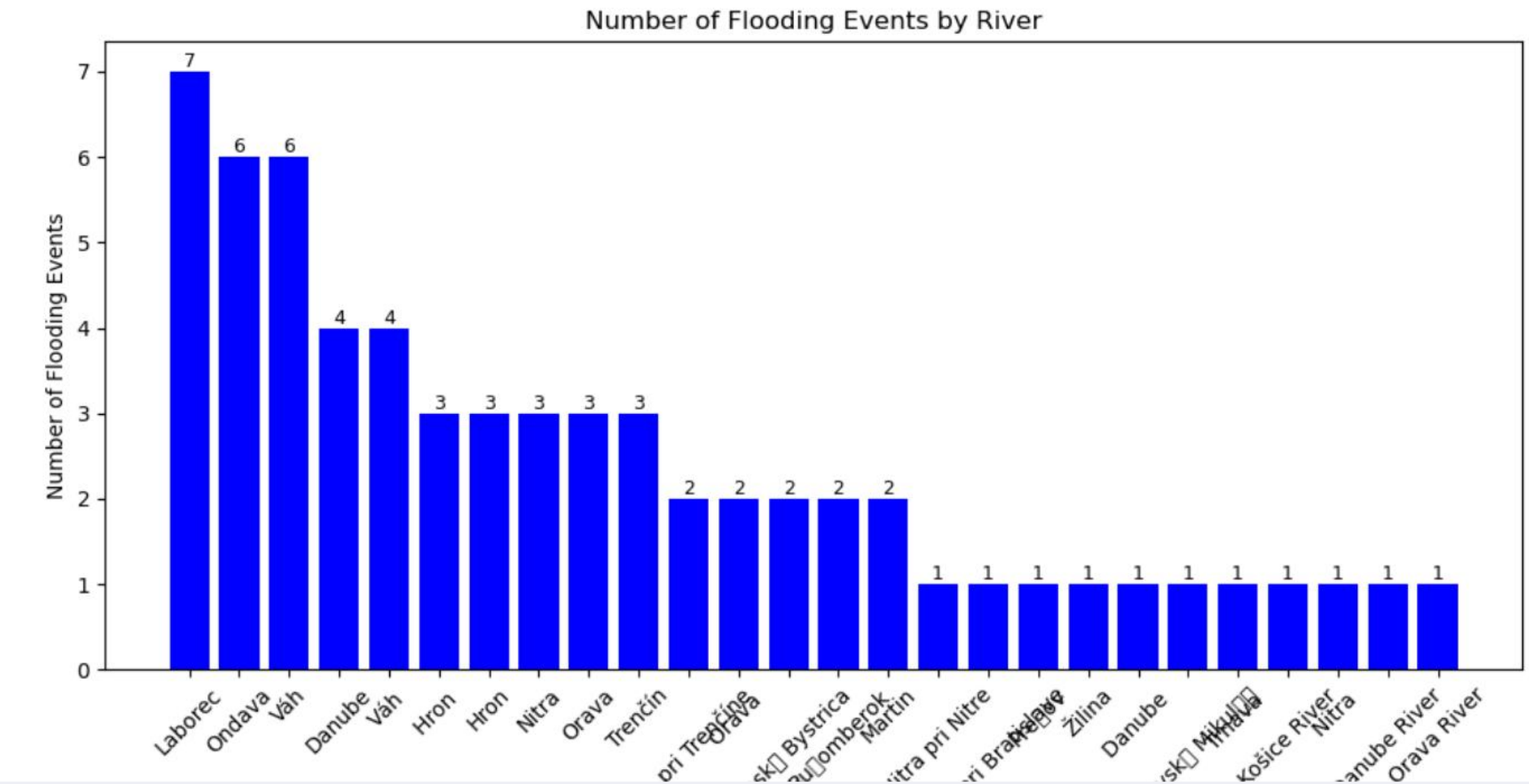
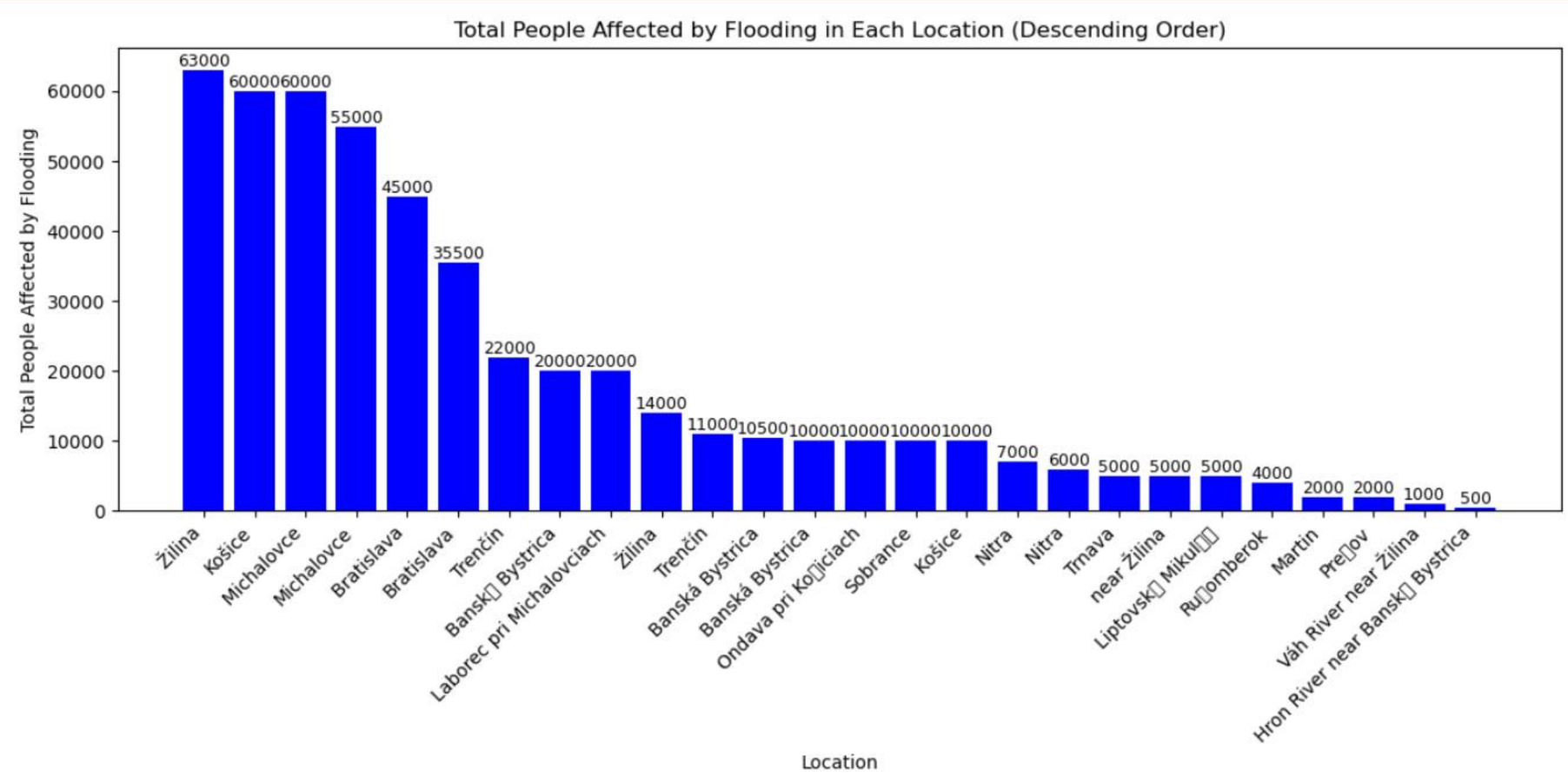

Cost of Damage from Flooding Events by Year
Cost of Damage (Million)
Year
800
700
600
500
400
300
200
100
0
1990
1995
2000
2005
2010
2015
2020
2025
770
770
770
770
450
170
735
5
10
5
10
20
450


Rainfall Levels Over Time for Each Flooding Event
Rainfall (mm)
100
80
60
40
20
1992
1996
2000
2004
2008
2012
2016
2020
2024
Date


Number of Flooding events by Location
Number of Flooding Events
0
1
2
3
4
5
6
7
8
8
5
5
4
4
3
3
3
3
3
3
2
2
2
2
2
1
1
1
1
1
1
1
1
1
1
Žilina
Košice
Trenčín
Bratislava
Trenčín
Žilina
Michalovce
Banská Bystrica
Nitra
Bratislava
Michalovce
Martin
Ružomberok
Banská Bystrica
Nitra
Banská Bystrica
Váh River near Žilina
Laborec pri Michalovciach
Ondava pri Košiciach
Košice
near Žilina
Liptovský Mikuláš
Sobrance
Hron River near Banská Bystrica


Number of Flooding Events by River
Number of Flooding Events
0
1
2
3
4
5
6
7
7
6
6
4
4
3
3
3
3
3
2
2
2
2
2
1
1
1
1
1
1
1
1
1
1
1
Laborec
Ondava
Váh
Danube
Váh
Hron
Hron
Nitra
Orava
Trenčín
Orava
Martin
Žilina
Danube
Košice River
Nitra
Orava River


Total People Affected by Flooding in Each Location (Descending Order)
Total People Affected by Flooding
Location
0
10000
20000
30000
40000
50000
60000
63000
60000
60000
55000
45000
35500
22000
20000
20000
14000
11000
10500
10000
10000
10000
10000
7000
6000
5000
5000
5000
4000
2000
2000
1000
500
Žilina
Košice
Michalovce
Michalovce
Bratislava
Bratislava
Trenčín
Bansk Bystrica
Laborec pri Michalovciach
Žilina
Trenčín
Banská Bystrica
Banská Bystrica
Ondava pri Ko iciach
Sobrance
Košice
Nitra
Nitra
Trnava
near Žilina
Liptovsk Mikul
Ru omberok
Martin
Pre ov
Váh River near Žilina
Hron River near Bansk Bystrica

END