



UNIVERZITET U ZENICI
Politehnički fakultet
Softversko inženjerstvo

Analiza podataka o video igrama i Google trendovima:

Istraživanje popularnih platformi, žanrova i geografskih razlika

Rudarenje Podataka

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Opis skupa podataka

- „Video Game Sales“ (www.kaggle.com/datasets/gregorut/videogamesales)
- Više od 16 500 video igara objavljenih u periodu 1980 – 2016

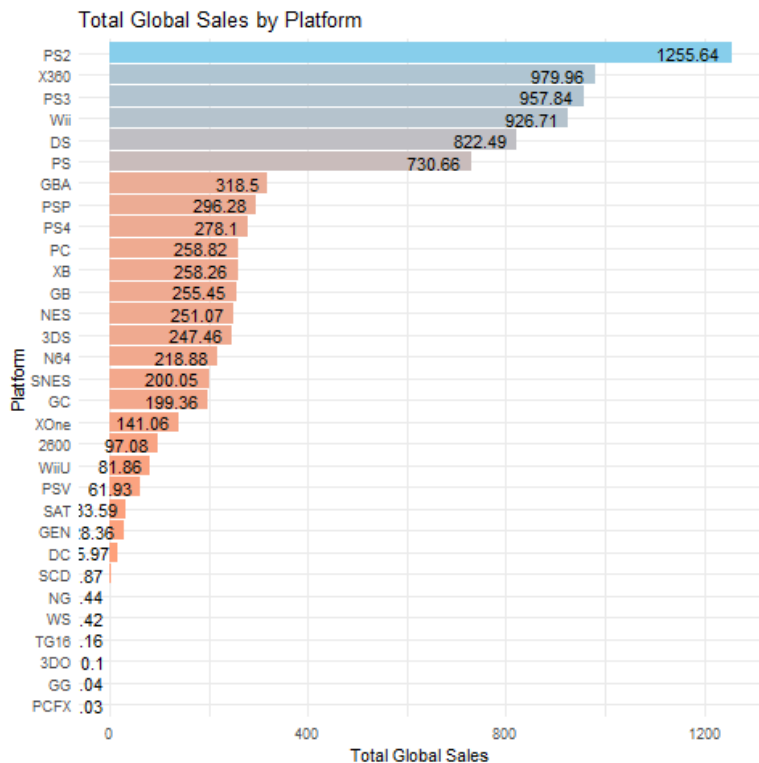
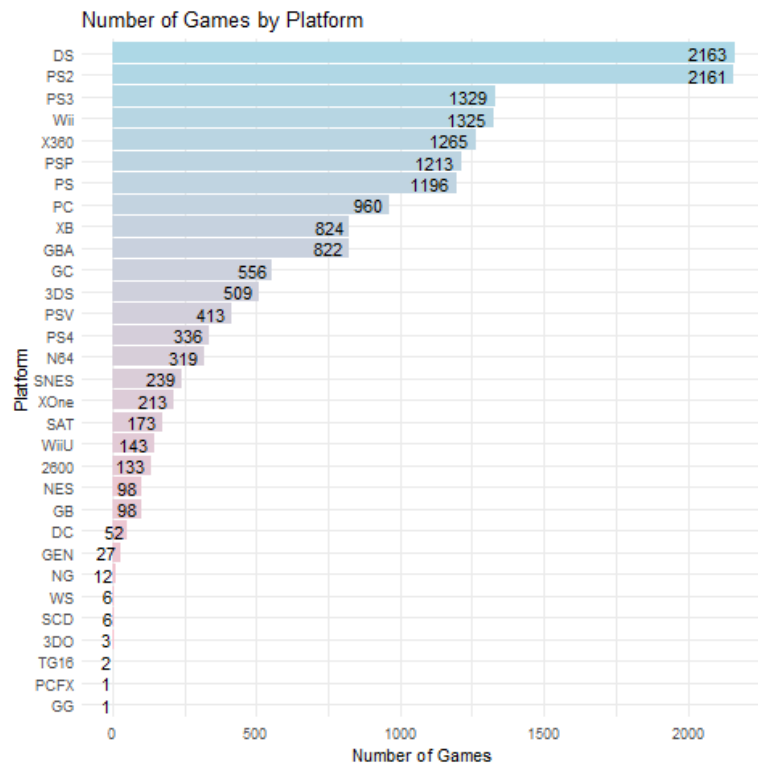
Rank	Name	Platform	Year	Genre	Publisher	NA_Sales	EU_Sales	JP_Sales	Other_Sales	Global_Sales
1	Wii Sports	Wii	2006	Sports	Nintendo	41.49	29.02	3.77	8.46	82.74
2	Super Mario Bros.	NES	1985	Platform	Nintendo	29.08	3.58	6.81	0.77	40.24
3	Mario Kart Wii	Wii	2008	Racing	Nintendo	15.85	12.88	3.79	3.31	35.82
4	Wii Sports Resort	Wii	2009	Sports	Nintendo	15.75	11.01	3.28	2.96	33
5	Pokemon Red/Pokemon Blue	GB	1996	Role-Playing	Nintendo	11.27	8.89	10.22	1	31.37
6	Tetris	GB	1989	Puzzle	Nintendo	23.2	2.26	4.22	0.58	30.26
7	New Super Mario Bros.	DS	2006	Platform	Nintendo	11.38	9.23	6.5	2.9	30.01

Prvih 7 redova skupa podataka

Korištene metode

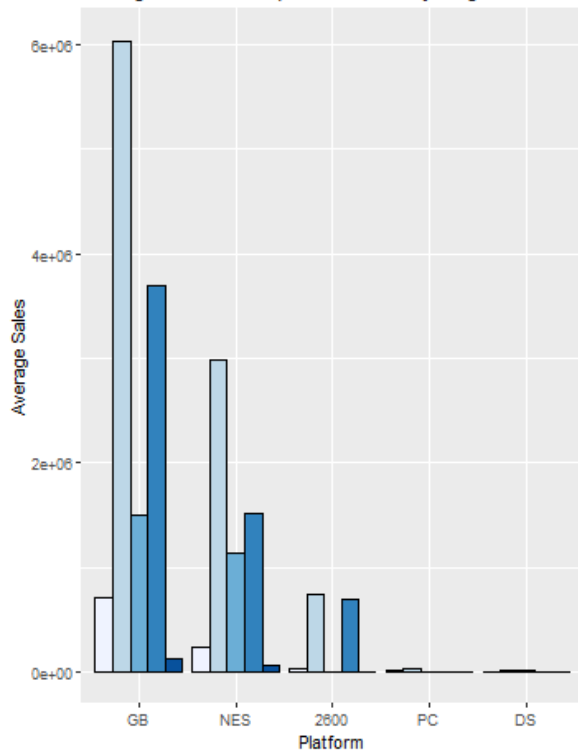
- **Cilj:** Identifikacija najpopularnijih žanrova igara, platformi i izdavača
- Uključivanje podataka iz Google Trends pretraga za popularne igre
- K-Means algoritam
- **Određivanje broja klastera:**
 - Metoda lakta (*Elbow Method*)
 - Metoda koeficijenta siluete (*Silhouette Coefficient*)

Analiza platformi za igranje

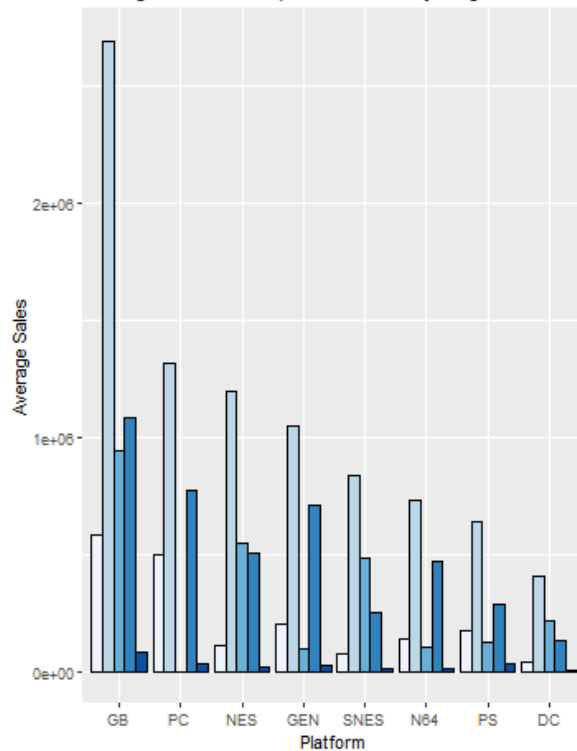


Najpopularnije platforme u regijama

Average Sales for Top 5 Platforms by Region in the 1980s



Average Sales for Top 8 Platforms by Region in the 1990s

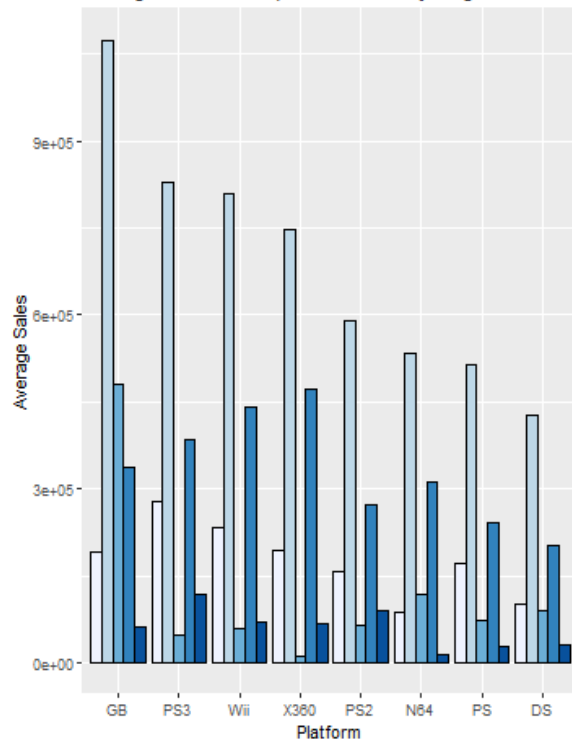


Region

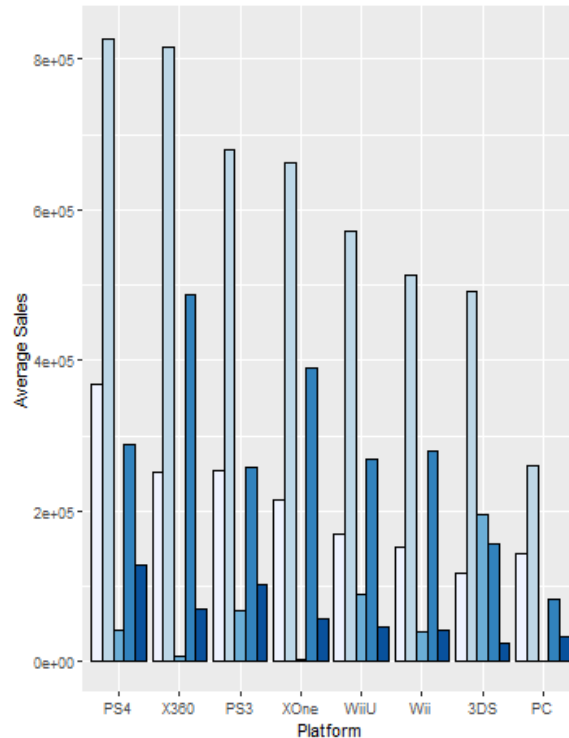
- avg_EU_Sales
- avg_Global_Sales
- avg_JP_Sales
- avg_NA_Sales
- avg_Other_Sales

Najpopularnije platforme u regijama

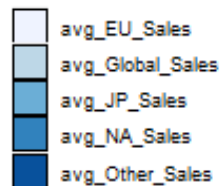
Average Sales for Top 8 Platforms by Region in the 2000s



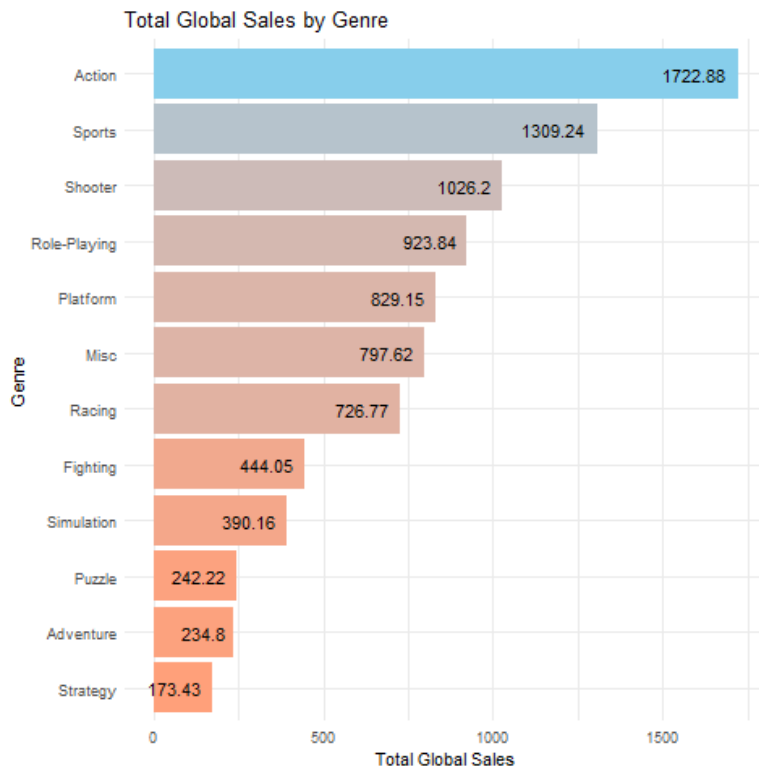
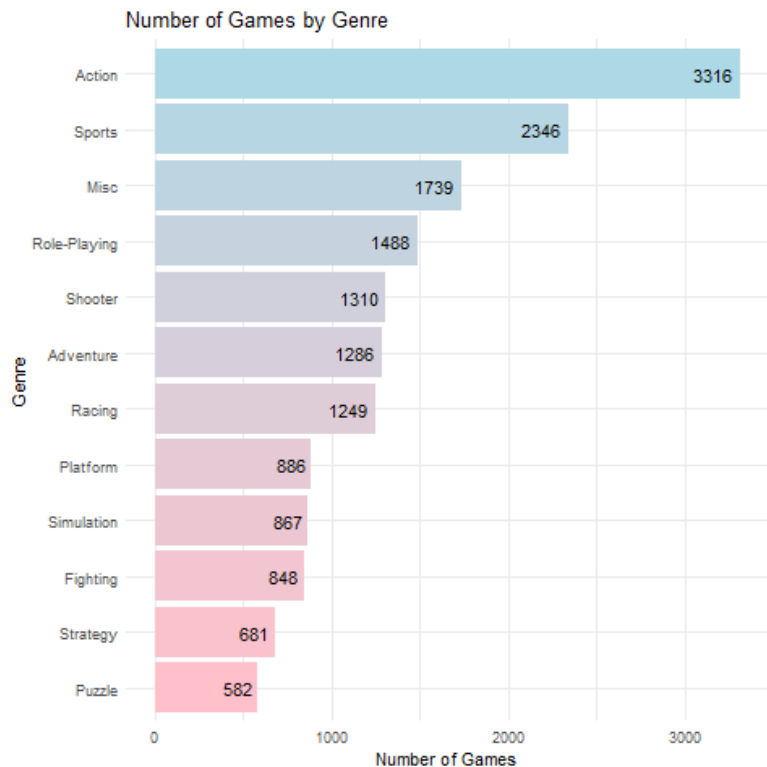
Average Sales for Top 8 Platforms by Region in the 2010s



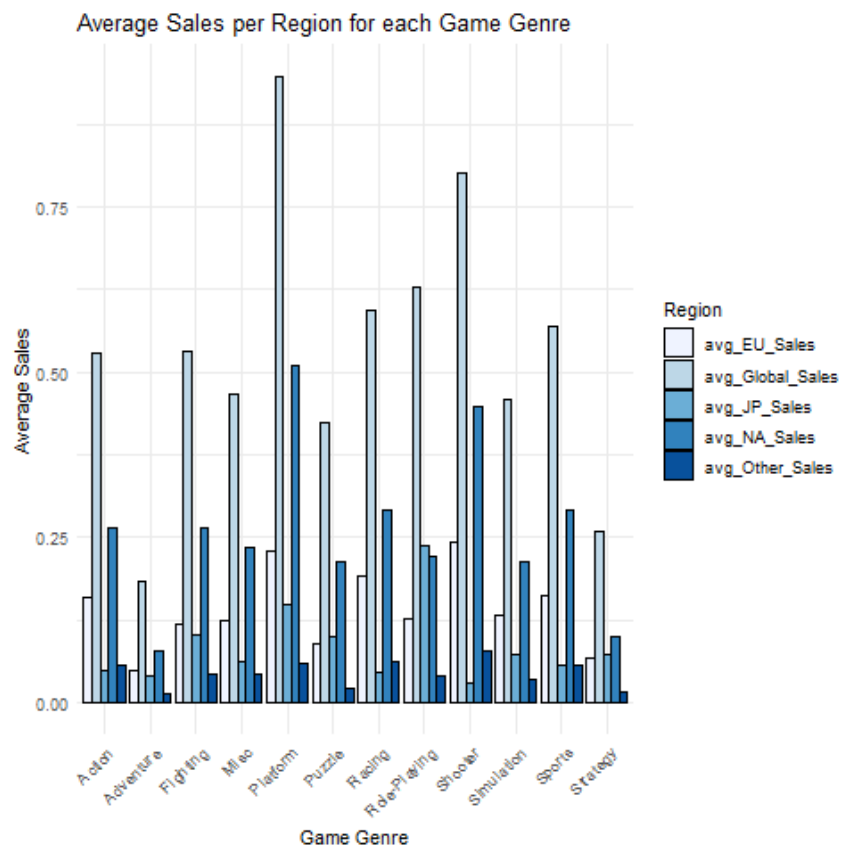
Region



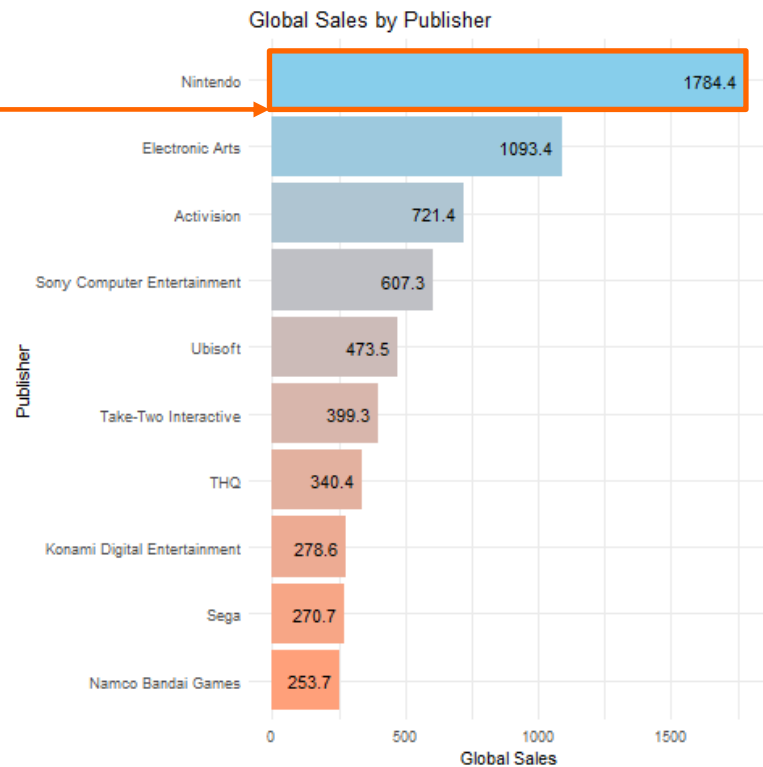
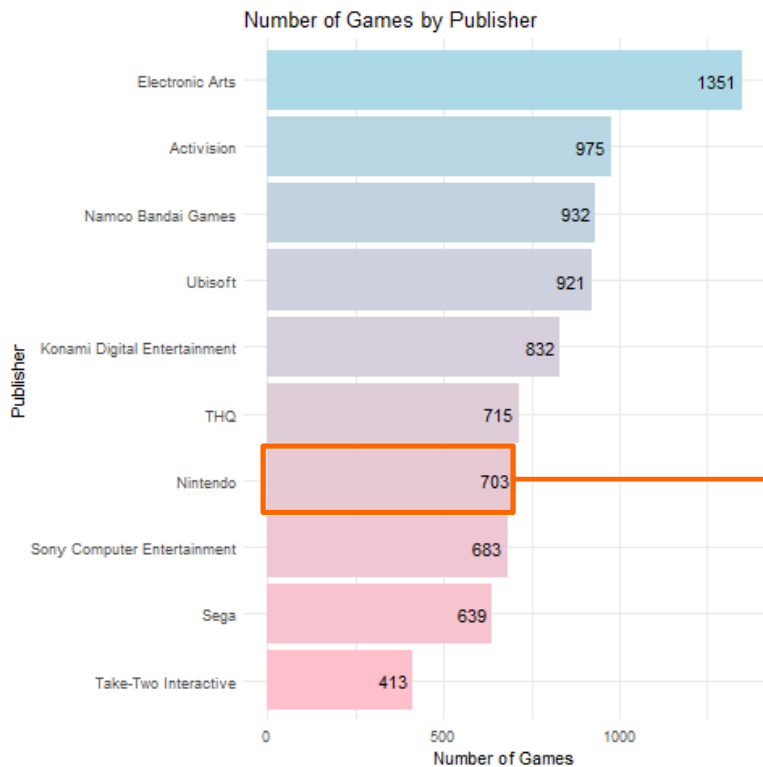
Analiza žanrova



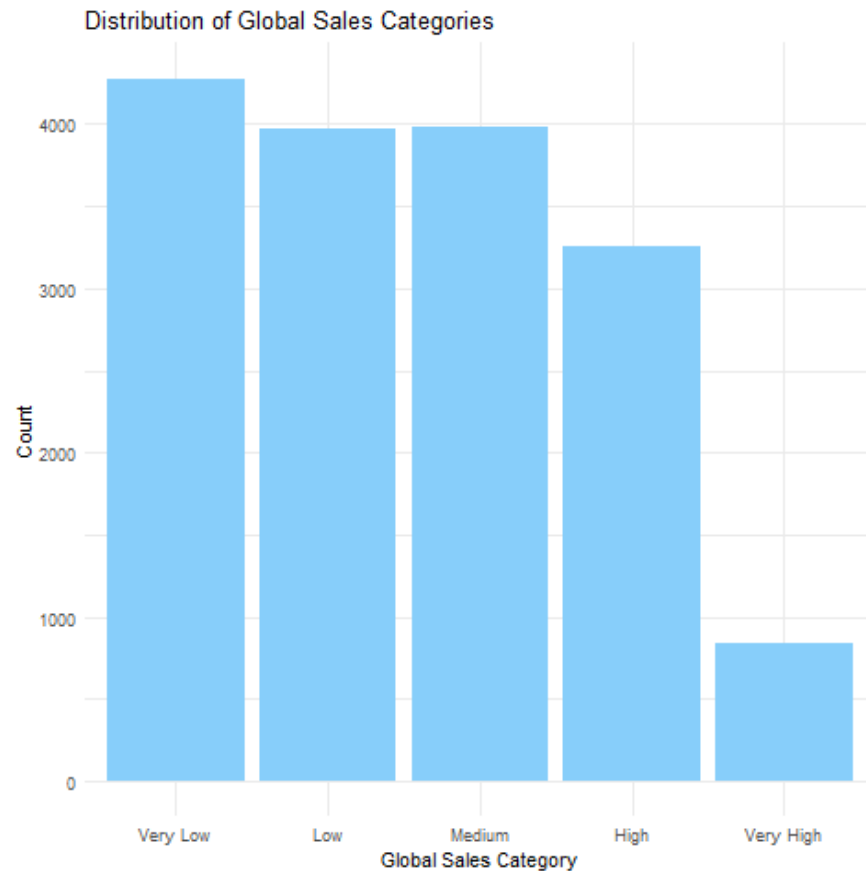
Prosječna prodaja žanrova u regijama



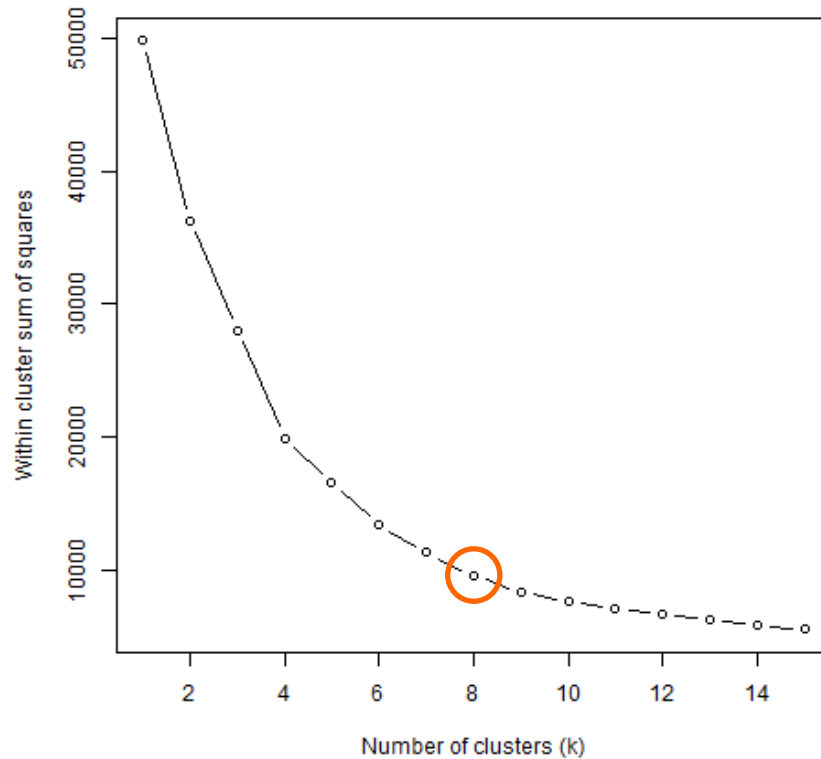
Analiza vodećih izdavača



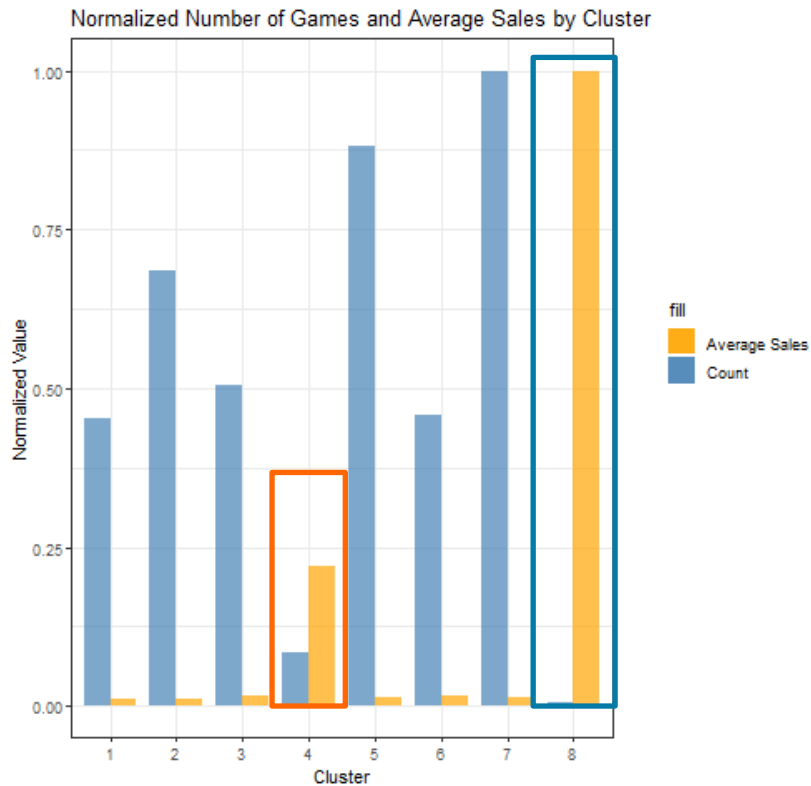
Distribucija globalne kategorije prodaje



K-Means klasterizacija (Elbow Method)

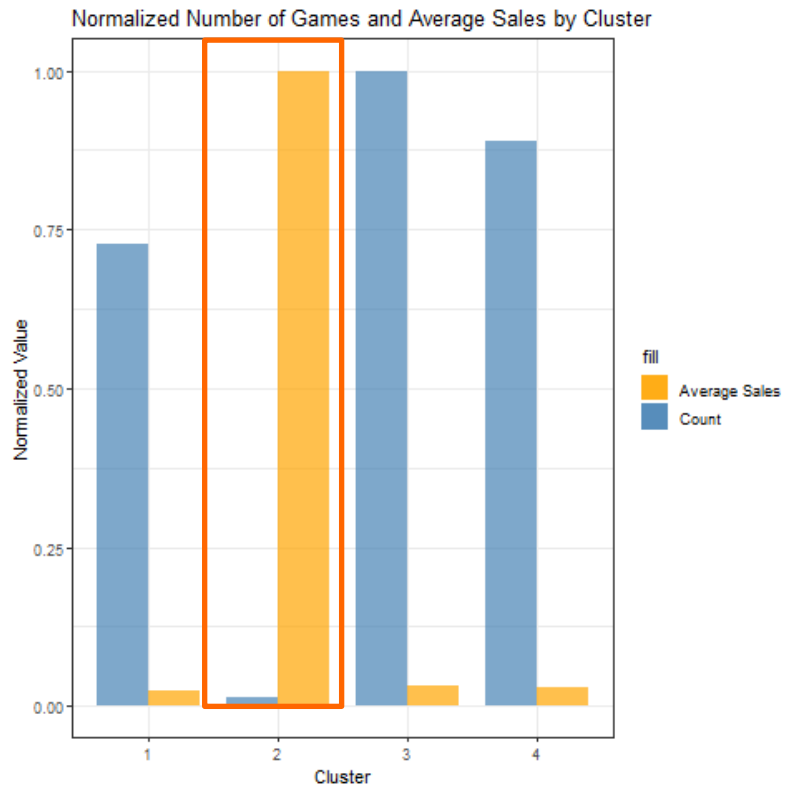


Odnos broja igara i prosječne prodaje po klasteru



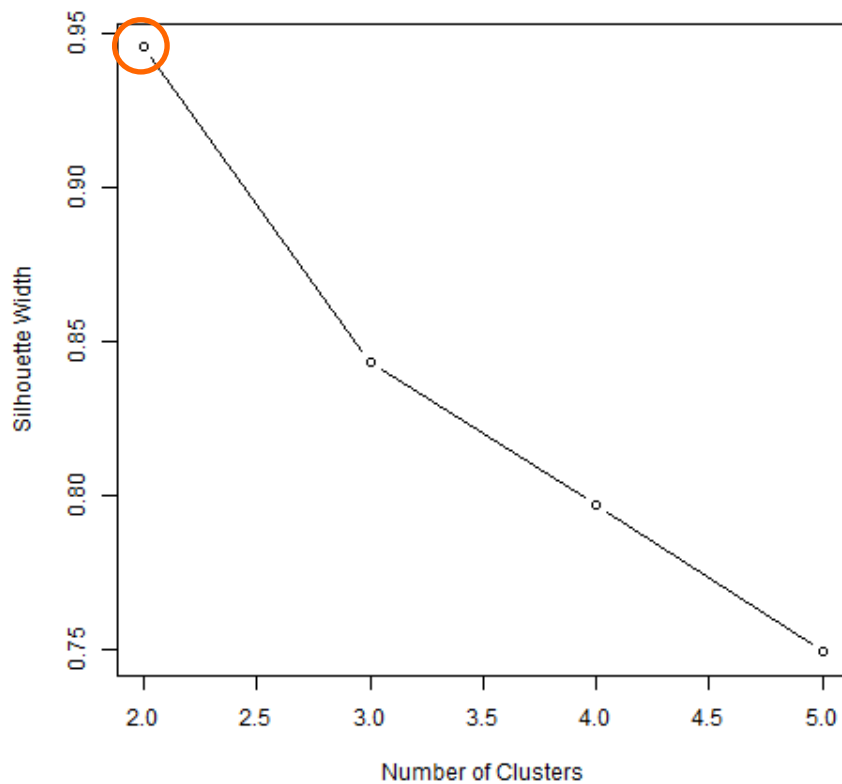
cluster	count	avg_global_sales
<int>	<int>	<dbl>
1	1842	0.326
2	2794	0.334
3	2059	0.443
4	339	6.16
5	3597	0.356
6	1866	0.423
7	4078	0.411
8	23	28.0

Odnos broja igara i prosječne prodaje po klasteru

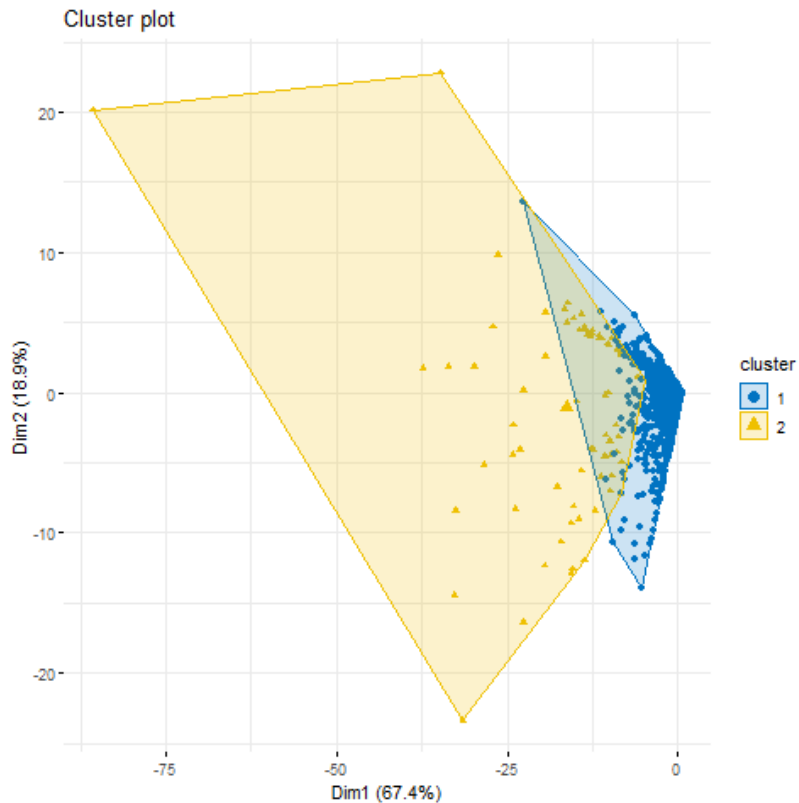


cluster	count	avg_global_sales
<int>	<int>	<dbl>
1	4514	0.384
2	77	16.6
3	6212	0.516
4	5524	0.471

K-Means klasterizacija (Silhouette Method)



Vizualizacija klasterâ



- **Klaster 1** (veličina: 16.521, širina siluete: 0,95)
- **Klaster 2** (veličina: 77, širina siluete: 0,19)

Uvid u klastere kroz sažetu statistiku

sales_data\$Cluster: 1

NA_Sales	EU_Sales	JP_Sales	Other_Sales
Min. :0.0000	Min. :0.0000	Min. :0.00000	Min. :0.00000
1st Qu.:0.0000	1st Qu.:0.0000	1st Qu.:0.00000	1st Qu.:0.00000
Median :0.0800	Median :0.0200	Median :0.00000	Median :0.01000
Mean :0.2274	Mean :0.1262	Mean :0.06869	Mean :0.04193
3rd Qu.:0.2300	3rd Qu.:0.1100	3rd Qu.:0.04000	3rd Qu.:0.03000
Max. :4.9800	Max. :6.4200	Max. :4.87000	Max. :7.53000

cluster



sales_data\$Cluster: 2

NA_Sales	EU_Sales	JP_Sales	Other_Sales
Min. : 2.550	Min. : 0.400	Min. : 0.000	Min. : 0.080
1st Qu.: 5.030	1st Qu.: 2.770	1st Qu.: 0.280	1st Qu.: 0.630
Median : 6.420	Median : 3.690	Median : 1.910	Median : 0.980
Mean : 8.292	Mean : 4.658	Mean : 2.184	Mean : 1.397
3rd Qu.: 9.070	3rd Qu.: 5.360	3rd Qu.: 3.600	3rd Qu.: 1.670
Max. :41.490	Max. :29.020	Max. :10.220	Max. :10.570

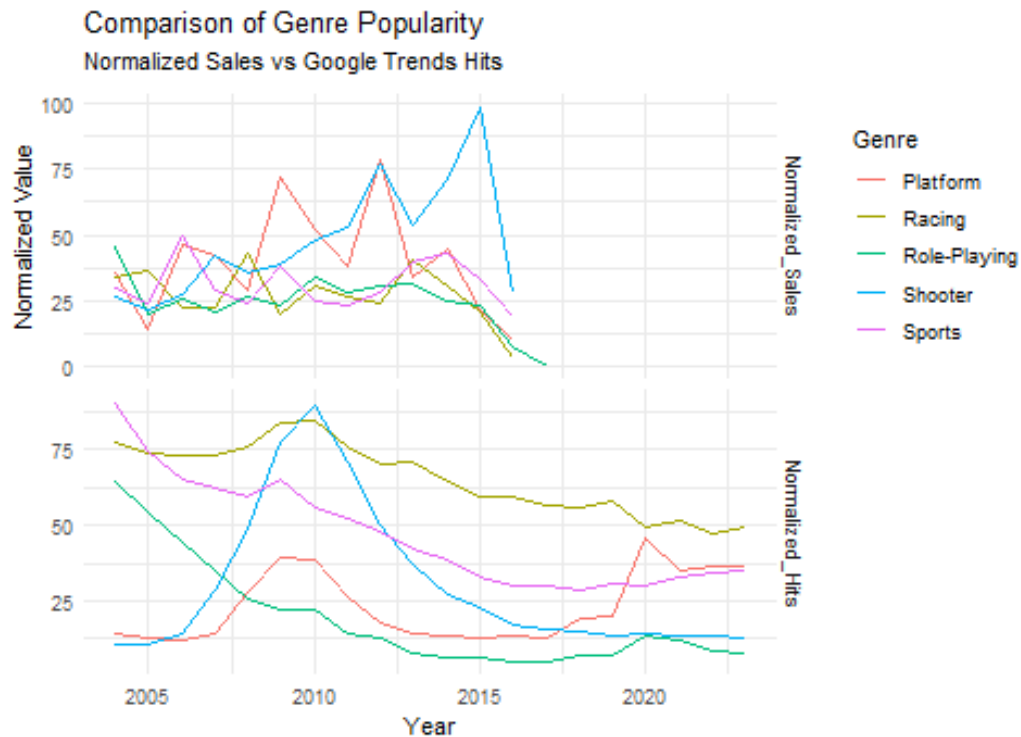
Sažeti statistički podaci za kategoričke varijable unutar klastera

Genre	Cluster		Platform	Cluster		Publisher	Cluster	
	1	2		1	2		1	2
Action	3244	9	3DS	495	5	Activision	954	12
Adventure	1275	1	DS	2122	11	Atari	346	1
Fighting	835	1	GBA	809	2	Capcom	376	0
Misc	1703	7	GC	542	0	Electronic Arts	1339	0
Platform	862	14	N64	313	3	Konami Digital Entertainment	823	0
Puzzle	568	3	PC	943	0	Namco Bandai Games	928	0
Racing	1218	8	PS	1187	2	Nintendo	653	43
Role-Playing	1461	10	PS2	2123	4	Sega	632	0
Shooter	1264	18	PS3	1296	8	Sony Computer Entertainment	678	4
Simulation	849	2	PS4	334	2	Square Enix	231	0
Sports	2300	4	PSP	1197	0	Take-Two Interactive	404	8
Strategy	671	0	PSV	412	0	Tecmo Koei	338	0
			Wii	1279	11	THQ	712	0
			X360	1221	14	Ubisoft	916	2
			XB	802	1	Warner Bros. Interactive Entertainment	217	0

cluster

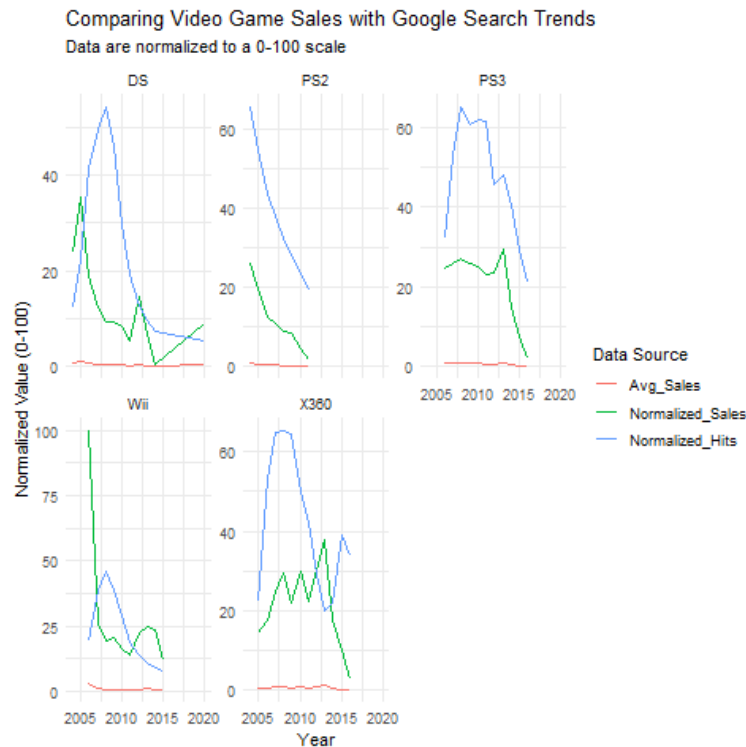


Analiza prosječne prodaje top 5 žanrova sa Google Trends pretraživanjima



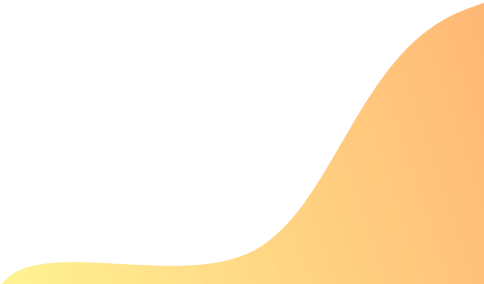
Rezultati poređenja prodaje i interesa za top 5 žanrova igara (2004-2016)

Analiza prosječne prodaje top 5 platformi sa Google Trends pretraživanjima



Grafički prikaz poređenja prosječne prodaje igara (zelena) i interesa iz Google Trends-a (plava)

Zaključci

- Popularni žanrovi: **platformske igre, pucačine**
 - Popularne platforme: **Wii, x360, DS**
 - Popularni izdavač: **Nintendo**
 - Veza sa prodajom i popularnošću igara unutar online pretraživanja nije uvijek izravna
 - Ograničenja u kontekstu kvalitete i količine podataka
 - **Važno je uzeti u obzir druge izvore informacija!**
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Hvala na pažnji