Project Reflections:

My initial focus during this project was based on the Key Questions from the GameCo Executives in the project brief:

1. Are certain types of games more popular than others?
2. What other publishers will likely be the main competitors in certain markets?
3. Have any games decreased or increased in popularity over time?
4. How have their sales figures varied between geographic regions over time?

To answer these questions, I started with cleaning up my data and reorganising it by genre, publisher, and region.

This quickly made it apparent that the popularity for different type of games varies by region. This is reflected in Inside 1 as shown on the next page.

To answer the second question, I made some pie-charts to show the main publishers in each of the regions. These will be included in the final presentation.

To answer the third question, I made a Pivot table with the percentage of sales per Genre in each of the regions. I added a slicer for each of the decades. This clearly shows the popularity change over time. This is shown in Insight 5.

To answer the last question, I created a Pivot table with the sales figures over the years. From this I made a line chart which shows a dramatic drop in sales numbers from 2008 onwards. As the drop from the peak around 2008 to 20216 was much greater in North America than in the other regions I decided to analyse this further. Inside 3 and 4 below are the result of this analysis.

Later in my analysis I grouped the years by decade. This gave me a clearer picture of how things changed over time. It also made it easier to "Zoom in" on the last few decades as they are more relevant to the current situation. Especially in my analysis of the annual growth it gives a better picture by just focussing on the last 2 decades. The high growth in the earlier years of the games market would make the decline in the last decade look irrelevant.

Insights:

1. North America and Europe are closely correlated in respect of Genre of Games. In Japan the Genre popularity is very different.

Genre Market share by Region
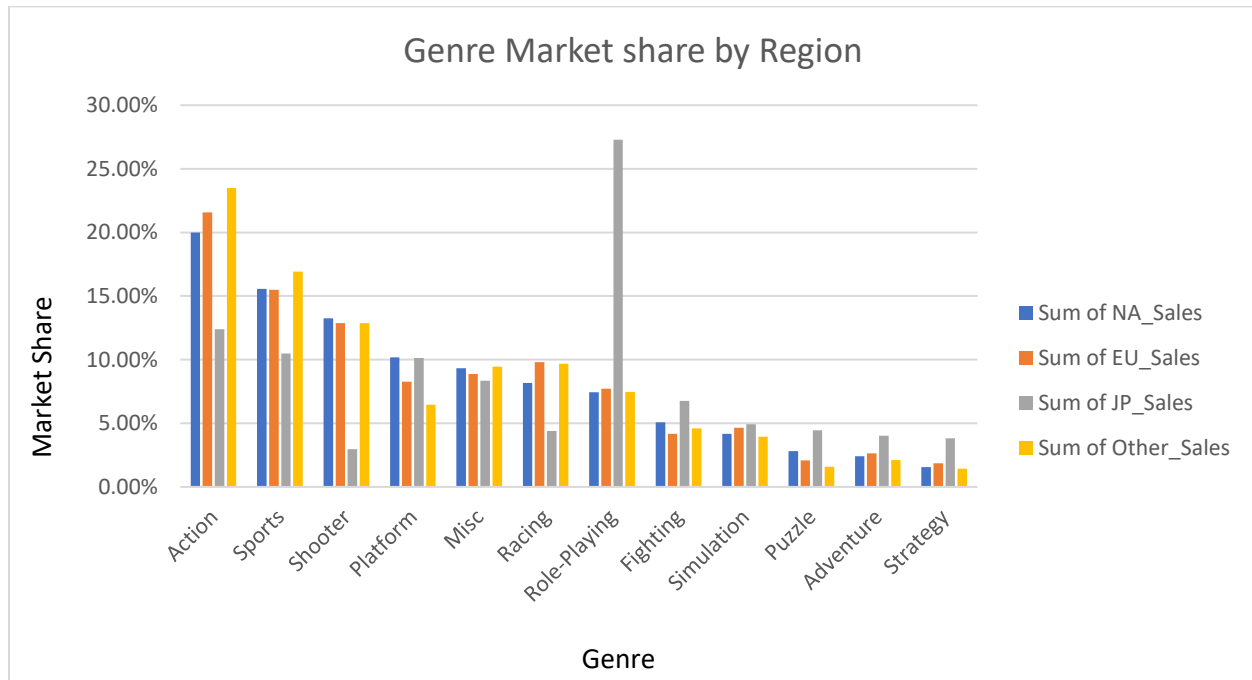
2. The same can be said from the type of platform used. Below I have grouped together the platform types in 3 categories: Home games consoles, handheld games consoles and PC's. Again, North America and Europe are closely correlated whilst Japan shows a different picture in the last few decades.

1990's

	% of NA sales	% of EU sales	% of JP sales	% of Global Sales
Home games console	**83.81%**	**81.10%**	**84.91%**	**83.62%**
Handheld	11.09%	12.19%	15.07%	12.47%
PC	5.10%	6.71%	0.02%	3.91%
Grand Total	100.00%	100.00%	100.00%	100.00%

2000's

	% of NA sales	% of EU sales	% of JP sales	% of Global Sales
Home games console	**73.39%**	**71.72%**	**52.73%**	**71.04%**
Handheld	25.59%	24.10%	47.26%	27.13%
PC	1.03%	4.17%	0.02%	1.83%
Grand Total	100.00%	100.00%	100.00%	100.00%

2010's

	% of NA sales	% of EU sales	% of JP sales	% of Global Sales
Home games console	**81.63%**	**78.67%**	37.02%	**75.35%**
Handheld	14.95%	13.45%	**62.98%**	19.88%
PC	3.42%	7.88%	0.00%	4.77%
Grand Total	100.00%	100.00%	100.00%	100.00%

As this clearly shows the handheld consoles increased in popularity in the 2000's. In Japan this kept increasing in the 2010's whilst in North America and Europe it dropped back to roughly the same percentage.

3. Europe, and Japan in a lesser extent, is gaining market share and North America is dropping away in recent years.

Market share by Region

Legend:
- Sum of Proportion_NA_Sales
- Sum of Proportion_EU_Sales
- Sum of Proportion_JP_Sales

Y-axis: Percentage of Global Sales
X-axis: Years (1980, 1982, 1984, 1986, 1988, 1990, 1992, 1994, 1996, 1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016) grouped as 80's, 90's, 00's, 10's
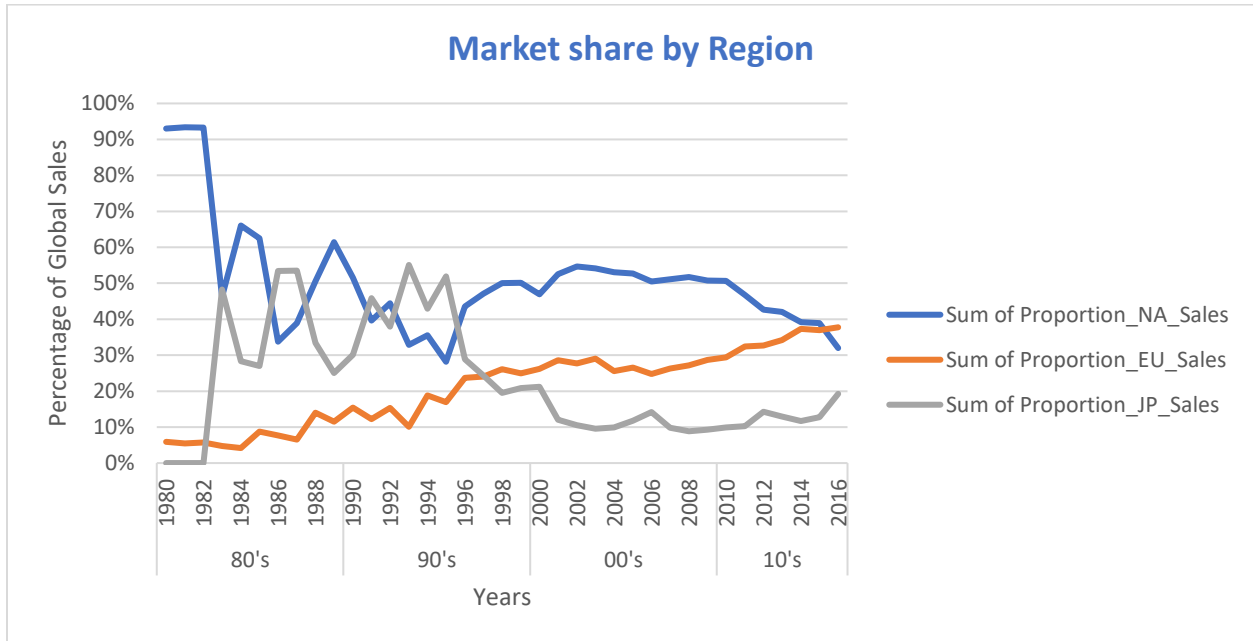
4. Sharp drop in global sales from 2009 onwards.
    a. The data does not provide an answer as to why this drop occurred. I suspect this may be because of the increased number of online games available but I have not found an answer to this. As this is very important for future revenue and success this is something that should be investigated further.
    b. As the chart below shows the decline in Japan is smaller than North America and Europe. If this trend continues the market share of Japan will increase in the coming years. This is something that should be closely monitored.
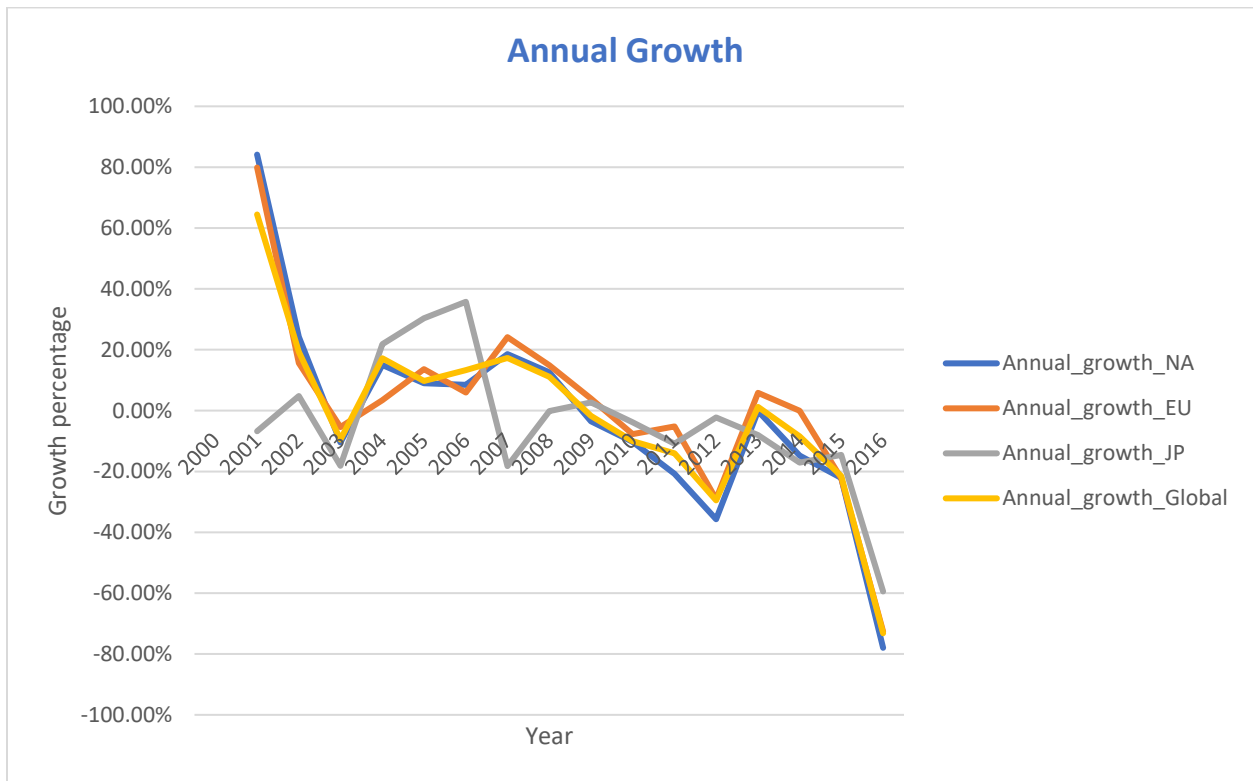
5. The tables below show the market share of each Genre in the different regions in the last 3 decades.

1990's

Genre	% of NA sales	% of EU sales	% of JP sales	% of other Sales	% of Global Sales
Action	12.67%	14.18%	5.26%	13.63%	10.89%
Adventure	2.92%	4.66%	3.57%	3.35%	3.50%
Fighting	9.76%	8.41%	10.60%	8.84%	9.65%
Misc	5.37%	4.84%	4.49%	4.41%	4.97%
Platform	**19.54%**	**16.31%**	11.55%	**14.85%**	**16.34%**
Puzzle	2.31%	1.63%	5.38%	2.11%	3.05%
Racing	13.49%	14.53%	6.77%	13.31%	11.76%
Role-Playing	8.10%	11.51%	**26.59%**	13.22%	14.43%
Shooter	6.73%	6.25%	2.71%	4.98%	5.39%
Simulation	3.09%	3.03%	6.31%	4.69%	4.07%
Sports	12.27%	10.32%	10.97%	12.46%	11.46%
Strategy	3.76%	4.33%	5.80%	4.16%	4.49%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%

2000's

Genre	% of NA sales	% of EU sales	% of JP sales	% of other Sales	% of Global Sales
Action	**19.23%**	**18.77%**	11.76%	**21.14%**	**18.50%**
Adventure	2.57%	2.47%	4.20%	2.16%	2.67%
Fighting	5.07%	4.35%	6.07%	5.09%	4.98%
Misc	10.08%	10.50%	11.98%	11.21%	10.50%
Platform	8.45%	8.17%	7.73%	6.65%	8.12%
Puzzle	2.31%	2.68%	4.07%	1.96%	2.57%
Racing	9.41%	11.01%	4.13%	11.52%	9.49%
Role-Playing	7.11%	6.47%	**27.07%**	6.04%	9.01%
Shooter	10.71%	9.83%	1.81%	9.27%	9.36%
Simulation	5.68%	6.30%	5.26%	5.12%	5.73%
Sports	18.01%	17.83%	11.83%	18.59%	17.35%
Strategy	1.37%	1.62%	4.10%	1.25%	1.72%
Grand Total	100.00%	100.00%	100.00%	100.00%	100.00%

2010's

Genre	% of NA sales	% of EU sales	% of JP sales	% of other Sales	% of Global Sales
Action	**25.87%**	**28.17%**	23.70%	**29.27%**	**26.72%**
Adventure	1.86%	2.27%	5.07%	2.50%	2.41%
Fighting	3.50%	2.49%	4.61%	3.13%	3.26%
Misc	11.26%	8.11%	8.02%	8.08%	9.45%
Platform	4.99%	4.61%	5.28%	3.92%	4.79%
Puzzle	0.84%	0.81%	1.14%	0.76%	0.84%
Racing	4.10%	6.62%	2.23%	5.63%	4.91%
Role-Playing	9.67%	8.79%	**33.65%**	9.30%	12.13%
Shooter	20.46%	19.84%	4.54%	19.48%	18.36%
Simulation	2.37%	3.03%	4.42%	2.39%	2.82%
Sports	13.88%	13.79%	5.14%	14.09%	12.89%
Strategy	1.20%	1.48%	2.21%	1.44%	1.42%
Grand Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Summary Statistics:

This Table shows the Statistics on the Sales numbers per Year between 1980 and 2016:

Statistics	NA_Sales	EU_Sales	JP_Sales	Global_Sales
Q1	25.14	4.695	14.83	48.305
Q3	204.89	120.36	52.04	381.775
IQR	179.75	115.67	37.21	333.47
Low Range	-244.49	-168.803	-40.99	-451.9
High Range	474.52	293.86	107.86	881.98
Mean	117.11	65.11	34.70	238.36
Median	94.49	48.32	39.42	200.98

And the next table shows the Statistics on the Sales numbers listed per individual Game.

NA_Sales		EU_Sales		JP_Sales		Other_Sales		Global_Sales	
Mean	0.265	Mean	0.147	Mean	0.0778	Mean	0.050	Mean	0.538
Standard Error	0.006	Standard Error	0.004	Standard Error	0.0024	Standard Error	0.001	Standard Error	0.012
Median	0.08	Median	0.02	Median	0	Median	0.01	Median	0.17
Mode	0	Mode	0	Mode	0	Mode	0	Mode	0.02
Standard Dev.	0.817	Standard Dev.	0.506	Standard Dev.	0.309	Standard Dev.	0.189	Standard Dev.	1.556
Sample Var.	0.668	Sample Var.	0.256	Sample Var.	0.096	Sample Var.	0.036	Sample Var.	2.420
	648.60		755.39		194.04		1027.40		603.44
Kurtosis	8	Kurtosis	5	Kurtosis	7	Kurtosis	9	Kurtosis	6
Skewness	18.792	Skewness	18.868	Skewness	11.201	Skewness	24.267	Skewness	17.394
Range	41.49	Range	29.02	Range	10.22	Range	10.57	Range	82.73
Minimum	0	Minimum	0	Minimum	0	Minimum	0	Minimum	0.01
Maximum	41.49	Maximum	29.02	Maximum	10.22	Maximum	10.57	Maximum	82.74
Sum	4392.9	Sum	2434.09	Sum	1290.5	Sum	821.272	Sum	8919.8
Count	16582	Count	16582	Count	16582	Count	16582	Count	16582

Step 4:

I have chosen the styling and type of visualizations in my presentation for the following reasons:

Style: I believe this style suits the audience, the executives of a Gaming company. It is clean and doesn't distract from the content.

Line charts: These charts give a clear picture of the trend. This was my main goal when using these charts.

Pie chart: They give a clear picture of who the big publishers are in the different markets. They lack detail in the areas that are less relevant. Because of the large number of publishers most other chart types would have been large and distracting from the main focus point.

Bar chart: This chart shows immediately where the divergence is in the data.

3-D Bar chart: This is a nice visual representation of the different market segment.