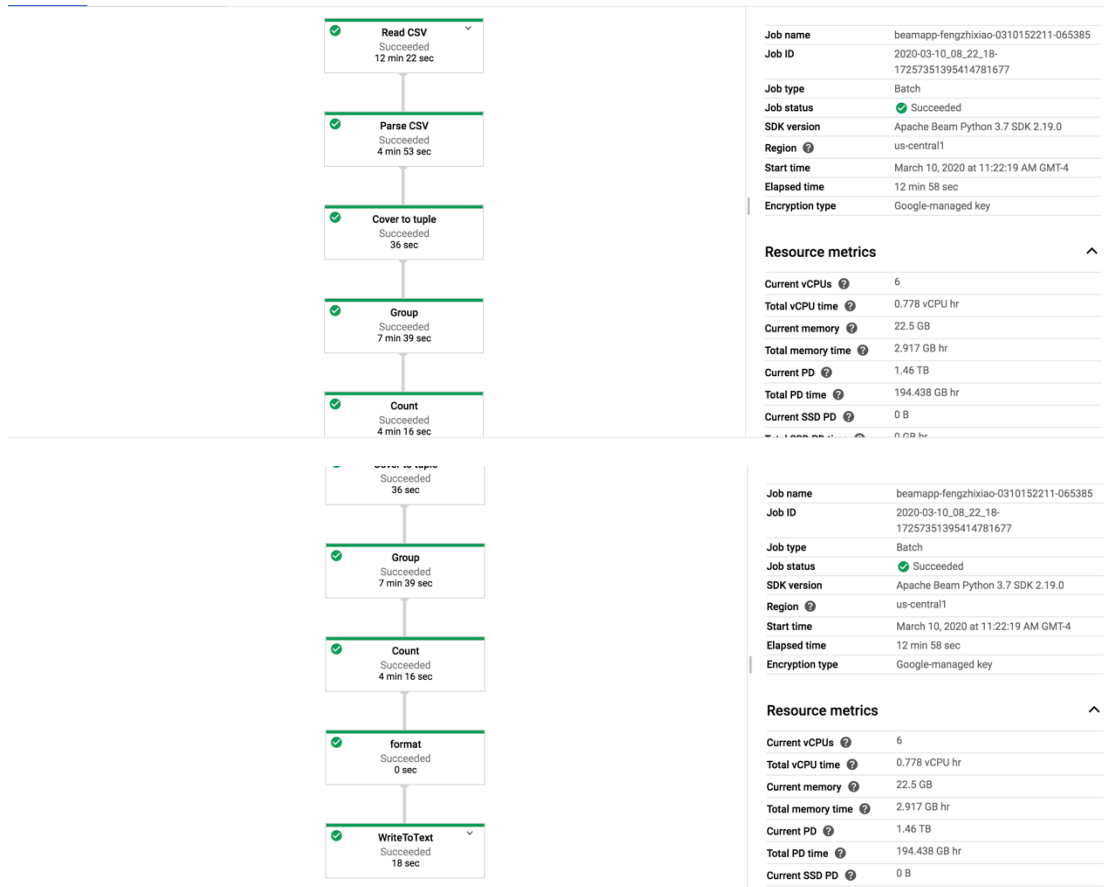
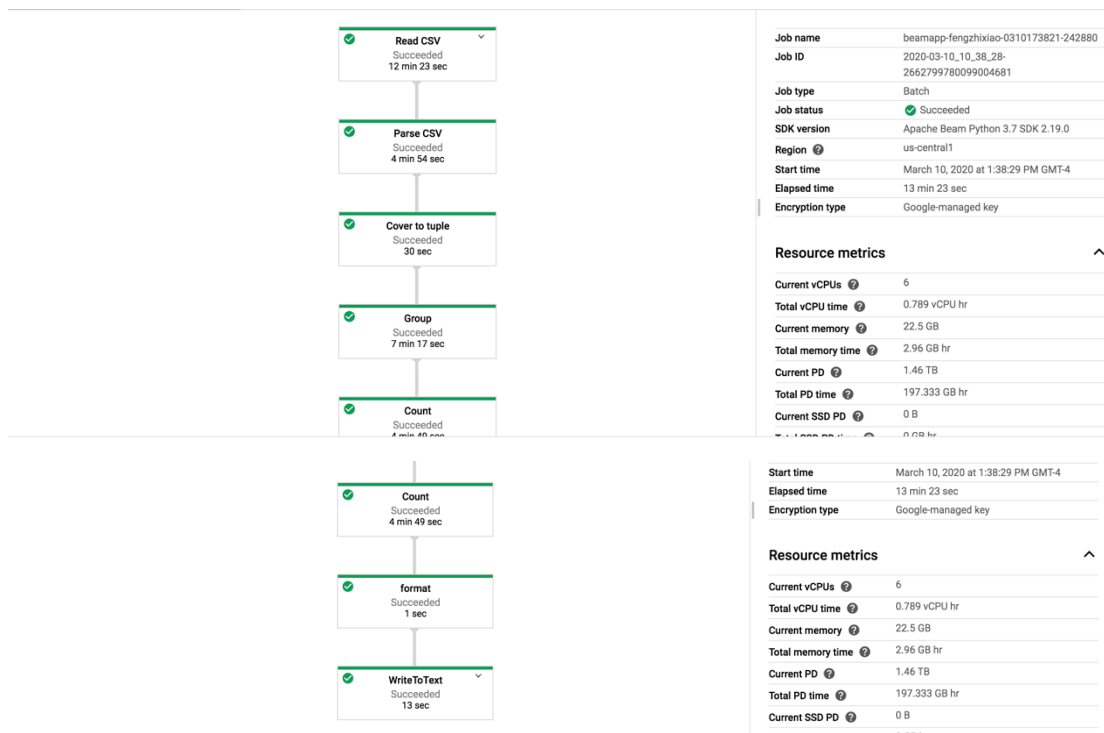


Screenshots:

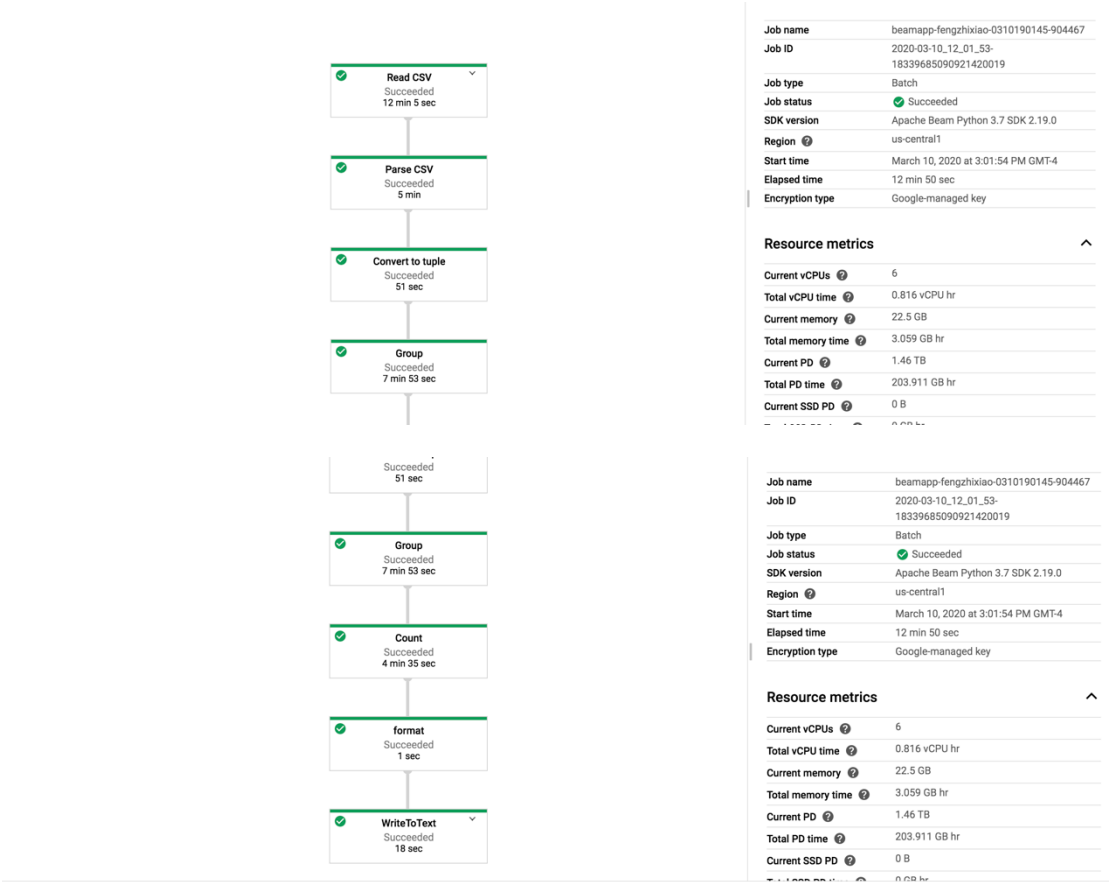
Game_numbers pipeline:



Game_revenue pipeline:



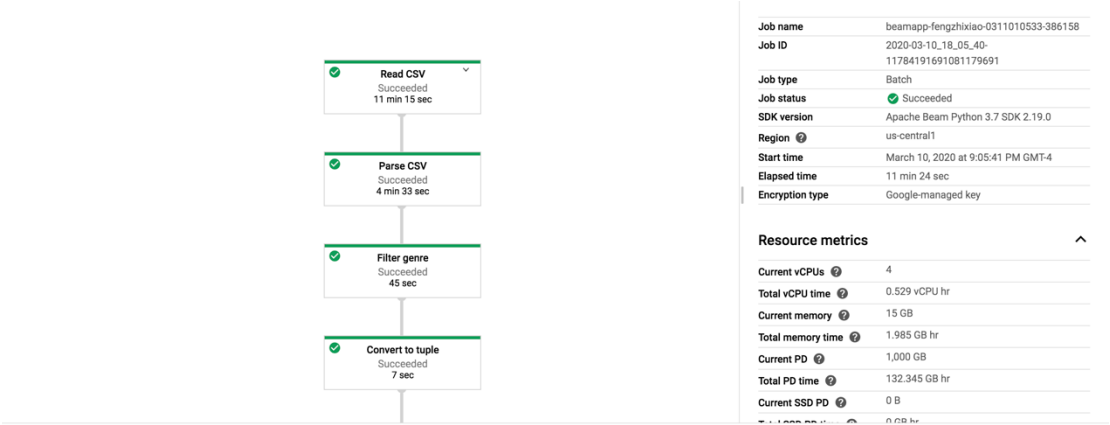
Developer_numbers:

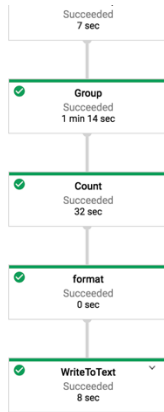


Sports_numbers:



Sports_revenue:

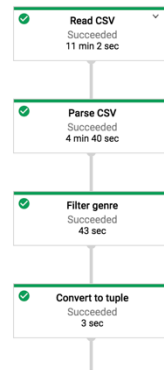




Job name	beamapp-fengzhixiao-0311010533-386158
Job ID	2020-03-10_18_05_40-11784191691081179691
Job type	Batch
Job status	✓ Succeeded
SDK version	Apache Beam Python 3.7 SDK 2.19.0
Region	us-central1
Start time	March 10, 2020 at 9:05:41 PM GMT-4
Elapsed time	11 min 24 sec
Encryption type	Google-managed key

Resource metrics	
Current vCPUs	4
Total vCPU time	0.529 vCPU hr
Current memory	15 GB
Total memory time	1.985 GB hr
Current PD	1,000 GB
Total PD time	132.345 GB hr
Current SSD PD	0 B

Sports_developer_number:



Job name	beamapp-fengzhixiao-0311020700-748710
Job ID	2020-03-10_19_07_08-6397012202591358839
Job type	Batch
Job status	✓ Succeeded
SDK version	Apache Beam Python 3.7 SDK 2.19.0
Region	us-central1
Start time	March 10, 2020 at 10:07:09 PM GMT-4
Elapsed time	11 min 27 sec
Encryption type	Google-managed key

Resource metrics	
Current vCPUs	4
Total vCPU time	0.528 vCPU hr
Current memory	15 GB
Total memory time	1.982 GB hr
Current PD	1,000 GB
Total PD time	132.107 GB hr
Current SSD PD	0 B



Job name	beamapp-fengzhixiao-0311020700-748710
Job ID	2020-03-10_19_07_08-6397012202591358839
Job type	Batch
Job status	✓ Succeeded
SDK version	Apache Beam Python 3.7 SDK 2.19.0
Region	us-central1
Start time	March 10, 2020 at 10:07:09 PM GMT-4
Elapsed time	11 min 27 sec
Encryption type	Google-managed key

Resource metrics	
Current vCPUs	4
Total vCPU time	0.528 vCPU hr
Current memory	15 GB
Total memory time	1.982 GB hr
Current PD	1,000 GB
Total PD time	132.107 GB hr
Current SSD PD	0 B

Sports_developer_revenue:



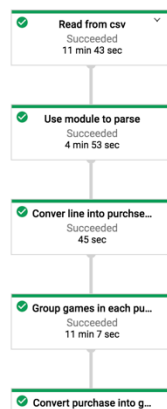
Job name	beamapp-fengzhixiao-0311022845-087060
Job ID	2020-03-10_19_28_52-5932952010132854689
Job type	Batch
Job status	✓ Succeeded
SDK version	Apache Beam Python 3.7 SDK 2.19.0
Region	us-central1
Start time	March 10, 2020 at 10:28:53 PM GMT-4
Elapsed time	12 min 9 sec
Encryption type	Google-managed key

Resource metrics	
Current vCPUs	4
Total vCPU time	0.499 vCPU hr
Current memory	15 GB
Total memory time	1.873 GB hr
Current PD	1,000 GB
Total PD time	124.89 GB hr
Current SSD PD	0 B

Job name	beamapp-fengzhixiao-0311022845-087060
Job ID	2020-03-10_19_28_52-5932952010132854689
Job type	Batch
Job status	✓ Succeeded
SDK version	Apache Beam Python 3.7 SDK 2.19.0
Region	us-central1
Start time	March 10, 2020 at 10:28:53 PM GMT-4
Elapsed time	12 min 9 sec
Encryption type	Google-managed key

Resource metrics	
Current vCPUs	4
Total vCPU time	0.499 vCPU hr
Current memory	15 GB
Total memory time	1.873 GB hr
Current PD	1,000 GB
Total PD time	124.89 GB hr
Current SSD PD	0 B

Most_purchased_together pipeline:



Job name	beamapp-fengzhixiao-0312165357-989847
Job ID	2020-03-12_09_54_05-11961312038335034080
Job type	Batch
Job status	✓ Succeeded
SDK version	Apache Beam Python 3.7 SDK 2.19.0
Region	us-central1
Start time	March 12, 2020 at 12:54:06 PM GMT-4
Elapsed time	1 hr 22 min
Encryption type	Google-managed key

Resource metrics	
Current vCPUs	4
Total vCPU time	5.345 vCPU hr
Current memory	15 GB
Total memory time	20.043 GB hr
Current PD	1,000 GB
Total PD time	1,336.196 GB hr
Current SSD PD	0 B

✔ Convert purchase into g...
Succeeded
12 min

✔ Flatten the list
Succeeded
5 min 21 sec

✔ Group by Game Paris
Succeeded
2 hr 57 min 49 sec

✔ Convert tuple to use fir...
Succeeded
3 min 15 sec

✔ Group by each gameId
Succeeded
46 min 22 sec

Job namebeamapp-fengzhixiao-0312165357-989847

Job ID2020-03-12_09_54_05-11961312038335034080

Job typeBatch

Job status✔ Succeeded

SDK versionApache Beam Python 3.7 SDK 2.19.0

Regionus-central1

Start timeMarch 12, 2020 at 12:54:06 PM GMT-4

Elapsed time1 hr 22 min

Encryption typeGoogle-managed key

Resource metrics

Current vCPUs4

Total vCPU time5.345 vCPU hr

Current memory15 GB

Total memory time20.043 GB hr

Current PD1,000 GB

Total PD time1,336.196 GB hr

Current SSD PD0 B

Total SSD PD0 GB hr

✔ Group by Game Paris
Succeeded
2 hr 57 min 49 sec

✔ Convert tuple to use fir...
Succeeded
3 min 15 sec

✔ Group by each gameId
Succeeded
46 min 22 sec

✔ Convert to output
Succeeded
24 min 39 sec

✔ WriteToText
Succeeded
44 sec

Job namebeamapp-fengzhixiao-0312165357-989847

Job ID2020-03-12_09_54_05-11961312038335034080

Job typeBatch

Job status✔ Succeeded

SDK versionApache Beam Python 3.7 SDK 2.19.0

Regionus-central1

Start timeMarch 12, 2020 at 12:54:06 PM GMT-4

Elapsed time1 hr 22 min

Encryption typeGoogle-managed key

Resource metrics

Current vCPUs4

Total vCPU time5.345 vCPU hr

Current memory15 GB

Total memory time20.043 GB hr

Current PD1,000 GB

Total PD time1,336.196 GB hr

Current SSD PD0 B

Total SSD PD0 GB hr