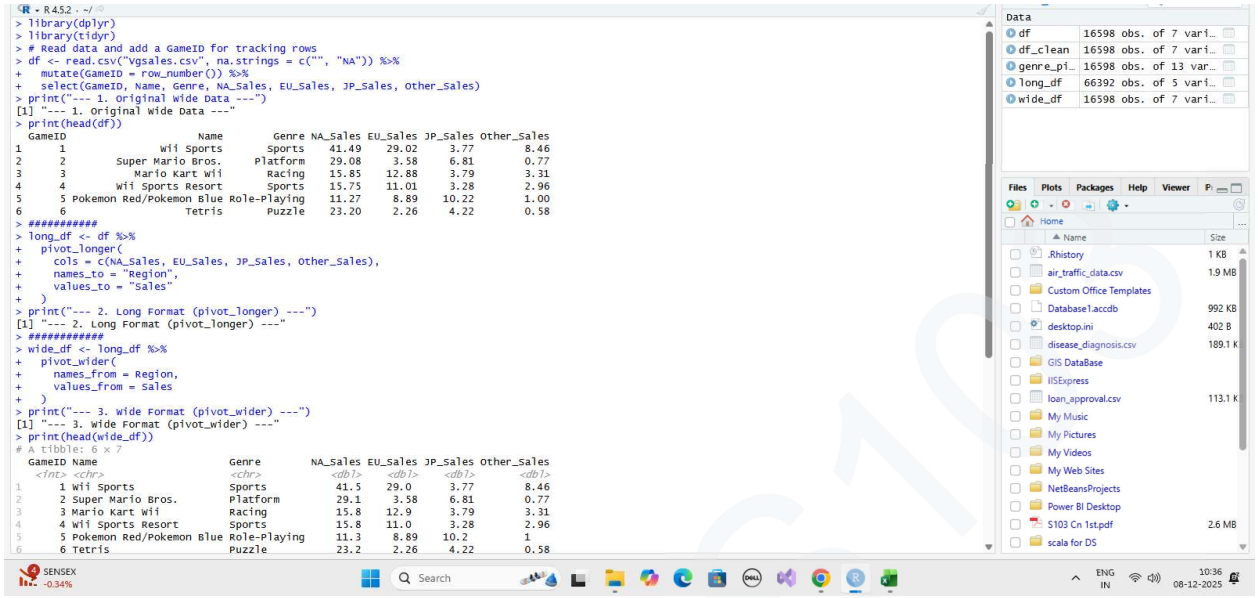
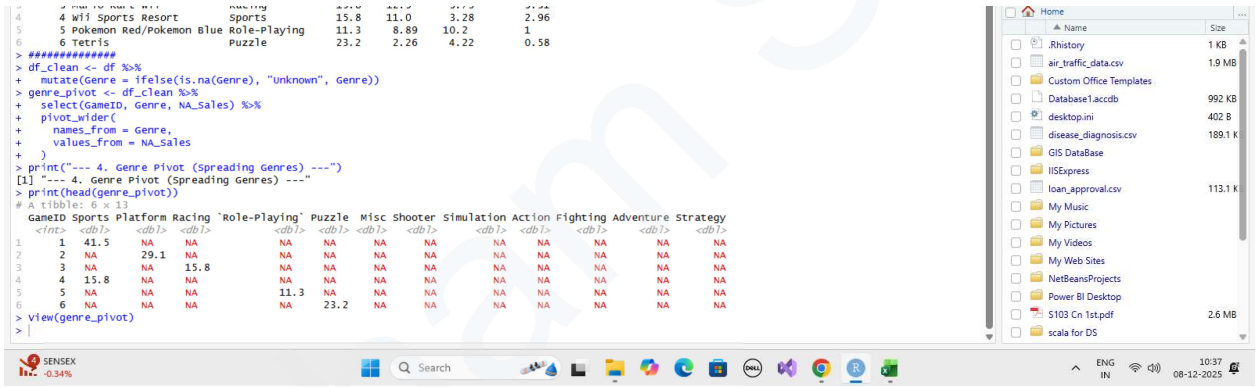
SHETH L.U.J. AND SIR M.V. COLLEGE

SUBJECT:Data Analysis with R

Aim: Reshaping data using pivot_longer() and pivot_wider() (R)



```
> library(dplyr)
> library(tidyr)
> # Read data and add a GameID for tracking rows
> df <- read.csv("Vgsales.csv", na.strings = c("", "NA")) %>%
+   mutate(GameID = row_number()) %>%
+   select(GameID, Name, Genre, NA_Sales, EU_Sales, JP_Sales, Other_Sales)
> print("--- 1. Original Wide Data ---")
[1] "--- 1. Original Wide Data ---"
> print(head(df))
  GameID                     Name       Genre NA_Sales EU_Sales JP_Sales Other_Sales
1      1               Wii Sports      Sports    41.49    29.02     3.77        8.46
2      2        Super Mario Bros.    Platform    29.08     3.58     6.81        0.77
3      3          Mario Kart Wii      Racing    15.85    12.88     3.79        3.31
4      4       Wii Sports Resort      Sports    15.75    11.01     3.28        2.96
5      5 Pokemon Red/Pokemon Blue Role-Playing    11.27     8.89    10.22        1.00
6      6                  Tetris      Puzzle    23.20     2.26     4.22        0.58
> ###########
> long_df <- df %>%
+   pivot_longer(
+     cols = c(NA_Sales, EU_Sales, JP_Sales, Other_Sales),
+     names_to = "Region",
+     values_to = "Sales"
+   )
> print("--- 2. Long Format (pivot_longer) ---")
[1] "--- 2. Long Format (pivot_longer) ---"
> ############
> wide_df <- long_df %>%
+   pivot_wider(
+     names_from = Region,
+     values_from = Sales
+   )
> print("--- 3. Wide Format (pivot_wider) ---")
[1] "--- 3. Wide Format (pivot_wider) ---"
> print(head(wide_df))
# A tibble: 6 × 7
  GameID Name                     Genre        NA_Sales EU_Sales JP_Sales Other_Sales
   <int> <chr>                    <chr>           <dbl>    <dbl>    <dbl>       <dbl>
1      1 Wii Sports               Sports           41.5    29.0      3.77        8.46
2      2 Super Mario Bros.        Platform         29.1     3.58     6.81        0.77
3      3 Mario Kart Wii           Racing           15.8    12.9      3.79        3.31
4      4 Wii Sports Resort        Sports           15.8    11.0      3.28        2.96
5      5 Pokemon Red/Pokemon Blue Role-Playing     11.3     8.89    10.2         1
6      6 Tetris                   Puzzle           23.2     2.26     4.22        0.58
```



```
4      4 Wii Sports Resort        Sports           15.8    11.0      3.28        2.96
5      5 Pokemon Red/Pokemon Blue Role-Playing     11.3     8.89    10.2         1
6      6 Tetris                   Puzzle           23.2     2.26     4.22        0.58
> ##############
> df_clean <- df %>%
+   mutate(Genre = ifelse(is.na(Genre), "Unknown", Genre))
> genre_pivot <- df_clean %>%
+   select(GameID, Genre, NA_Sales) %>%
+   pivot_wider(
+     names_from = Genre,
+     values_from = NA_Sales
+   )
> print("--- 4. Genre Pivot (Spreading Genres) ---")
[1] "--- 4. Genre Pivot (Spreading Genres) ---"
> print(head(genre_pivot))
# A tibble: 6 × 13
  GameID Sports Platform Racing `Role-Playing` Puzzle  Misc Shooter Simulation Action Fighting Adventure Strategy
   <int>  <dbl>    <dbl>  <dbl>          <dbl>  <dbl> <dbl>   <dbl>      <dbl>  <dbl>    <dbl>     <dbl>    <dbl>
1      1   41.5       NA     NA             NA     NA    NA      NA         NA     NA       NA        NA       NA
2      2     NA     29.1     NA             NA     NA    NA      NA         NA     NA       NA        NA       NA
3      3     NA       NA   15.8             NA     NA    NA      NA         NA     NA       NA        NA       NA
4      4   15.8       NA     NA             NA     NA    NA      NA         NA     NA       NA        NA       NA
5      5     NA       NA     NA           11.3     NA    NA      NA         NA     NA       NA        NA       NA
6      6     NA       NA     NA             NA   23.2    NA      NA         NA     NA       NA        NA       NA
> view(genre_pivot)
>
```

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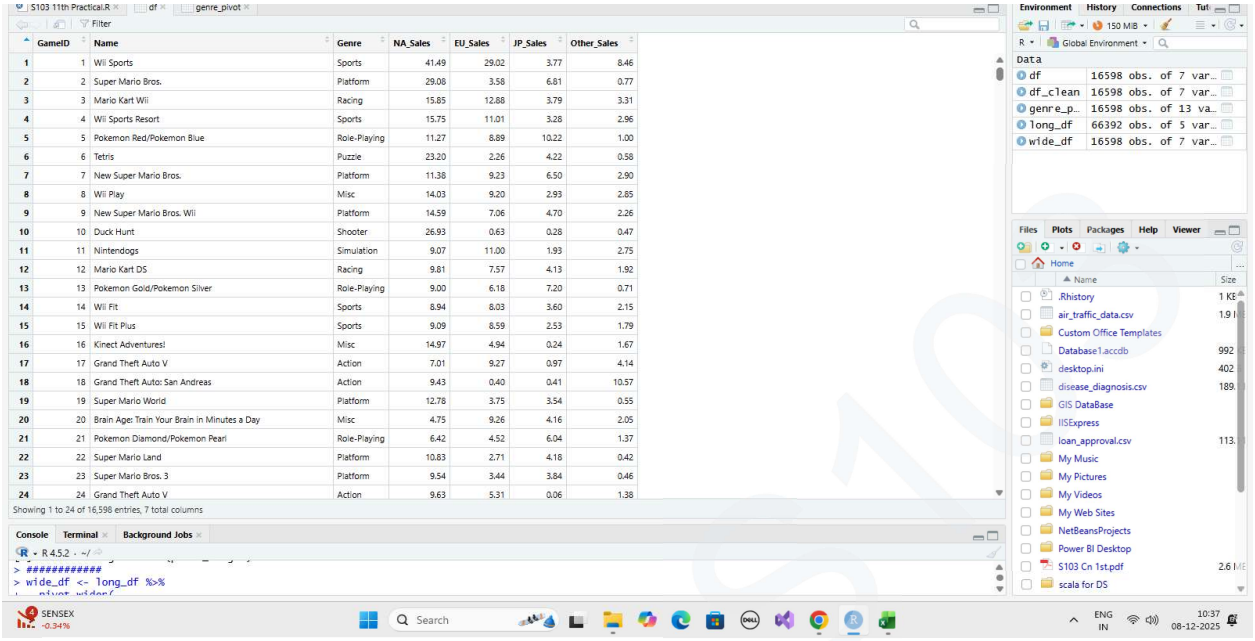
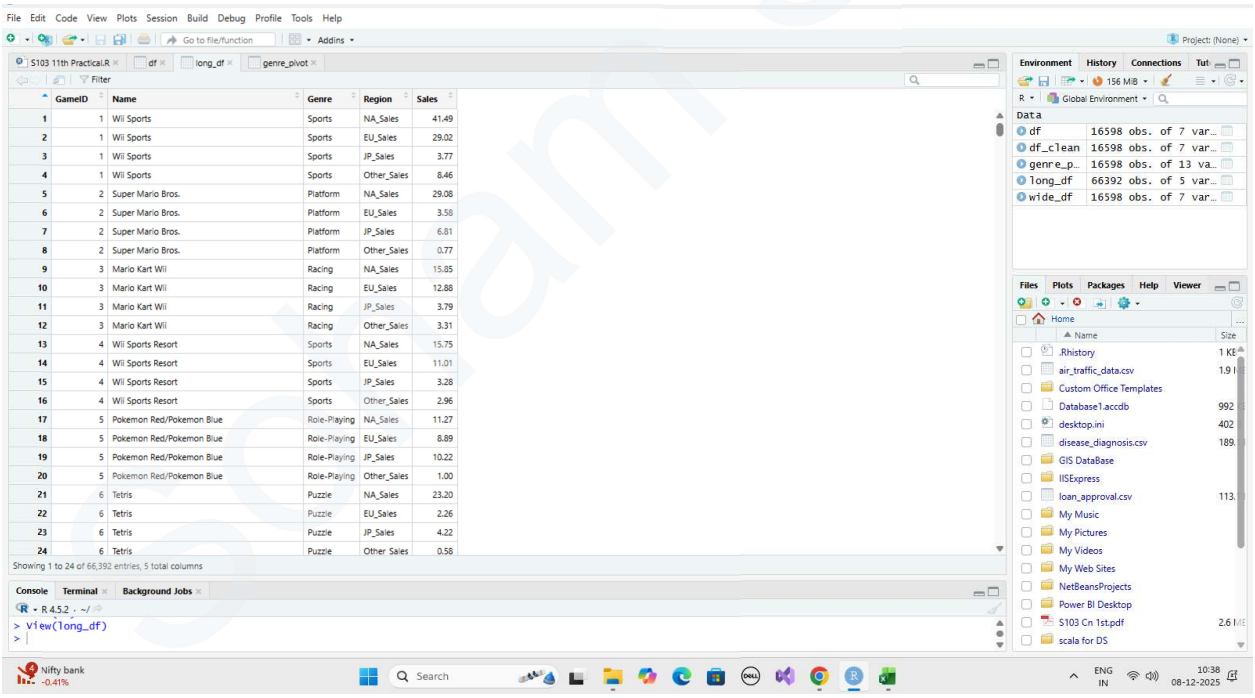


	GameID	Name	Genre	NA_Sales	EU_Sales	JP_Sales	Other_Sales
1	1	Wii Sports	Sports	41.49	29.02	3.77	8.46
2	2	Super Mario Bros.	Platform	29.08	3.58	6.81	0.77
3	3	Mario Kart Wii	Racing	15.85	12.88	3.79	3.31
4	4	Wii Sports Resort	Sports	15.75	11.01	3.28	2.96
5	5	Pokemon Red/Pokemon Blue	Role-Playing	11.27	8.89	10.22	1.00
6	6	Tetris	Puzzle	23.20	2.26	4.22	0.58
7	7	New Super Mario Bros.	Platform	11.38	9.23	6.50	2.90
8	8	Wii Play	Misc	14.03	9.20	2.93	2.85
9	9	New Super Mario Bros. Wii	Platform	14.59	7.06	4.70	2.26
10	10	Duck Hunt	Shooter	26.93	0.63	0.28	0.47
11	11	Nintendogs	Simulation	9.07	11.00	1.93	2.75
12	12	Mario Kart DS	Racing	9.81	7.57	4.13	1.92
13	13	Pokemon Gold/Pokemon Silver	Role-Playing	9.00	6.18	7.20	0.71
14	14	Wii Fit	Sports	8.94	8.03	3.60	2.15
15	15	Wii Fit Plus	Sports	9.09	8.59	2.53	1.79
16	16	Kinect Adventures!	Misc	14.97	4.94	0.24	1.67
17	17	Grand Theft Auto V	Action	7.01	9.27	0.97	4.14
18	18	Grand Theft Auto: San Andreas	Action	9.43	0.40	0.41	10.57
19	19	Super Mario World	Platform	12.78	3.75	3.54	0.55
20	20	Brain Age: Train Your Brain in Minutes a Day	Misc	4.75	9.26	4.16	2.05
21	21	Pokemon Diamond/Pokemon Pearl	Role-Playing	6.42	4.52	6.04	1.37
22	22	Super Mario Land	Platform	10.83	2.71	4.18	0.42
23	23	Super Mario Bros. 3	Platform	9.54	3.44	3.84	0.46
24	24	Grand Theft Auto V	Action	9.63	5.31	0.06	1.38

Showing 1 to 24 of 16,598 entries, 7 total columns

```
> ############
> wide_df <- long_df %>%
```



	GameID	Name	Genre	Region	Sales
1	1	Wii Sports	Sports	NA_Sales	41.49
2	1	Wii Sports	Sports	EU_Sales	29.02
3	1	Wii Sports	Sports	JP_Sales	3.77
4	1	Wii Sports	Sports	Other_Sales	8.46
5	2	Super Mario Bros.	Platform	NA_Sales	29.08
6	2	Super Mario Bros.	Platform	EU_Sales	3.58
7	2	Super Mario Bros.	Platform	JP_Sales	6.81
8	2	Super Mario Bros.	Platform	Other_Sales	0.77
9	3	Mario Kart Wii	Racing	NA_Sales	15.85
10	3	Mario Kart Wii	Racing	EU_Sales	12.88
11	3	Mario Kart Wii	Racing	JP_Sales	3.79
12	3	Mario Kart Wii	Racing	Other_Sales	3.31
13	4	Wii Sports Resort	Sports	NA_Sales	15.75
14	4	Wii Sports Resort	Sports	EU_Sales	11.01
15	4	Wii Sports Resort	Sports	JP_Sales	3.28
16	4	Wii Sports Resort	Sports	Other_Sales	2.96
17	5	Pokemon Red/Pokemon Blue	Role-Playing	NA_Sales	11.27
18	5	Pokemon Red/Pokemon Blue	Role-Playing	EU_Sales	8.89
19	5	Pokemon Red/Pokemon Blue	Role-Playing	JP_Sales	10.22
20	5	Pokemon Red/Pokemon Blue	Role-Playing	Other_Sales	1.00
21	6	Tetris	Puzzle	NA_Sales	23.20
22	6	Tetris	Puzzle	EU_Sales	2.26
23	6	Tetris	Puzzle	JP_Sales	4.22
24	6	Tetris	Puzzle	Other_Sales	0.58

Showing 1 to 24 of 66,392 entries, 5 total columns

```
> View(long_df)
>
```

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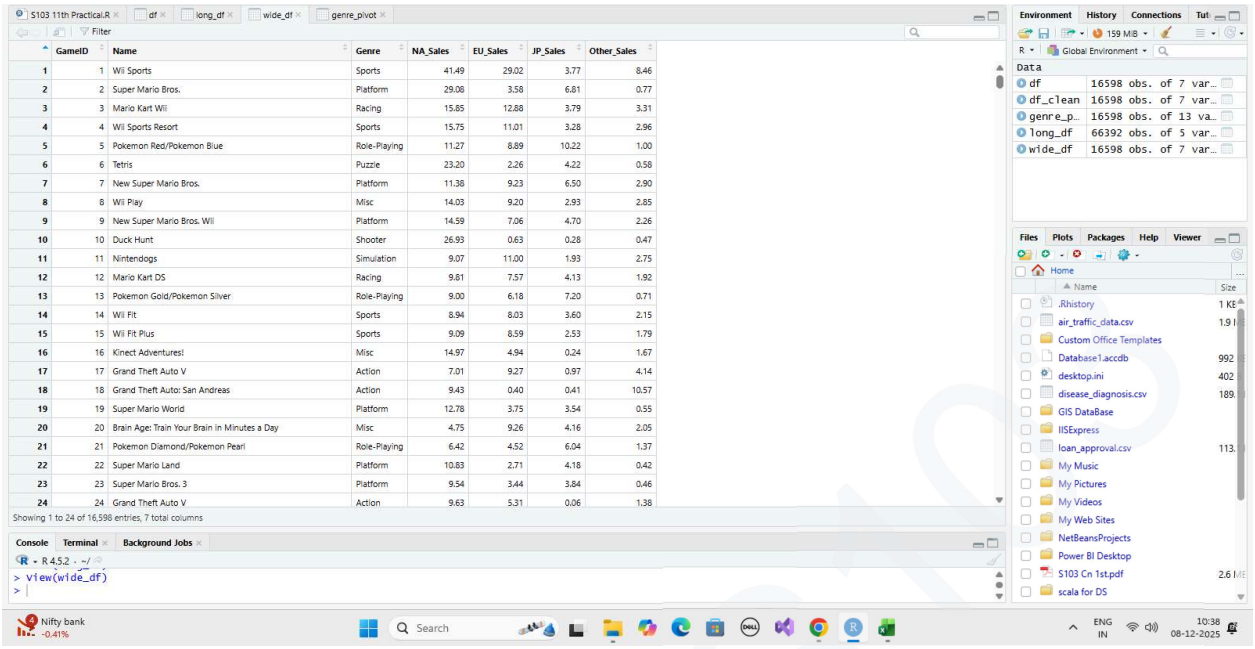
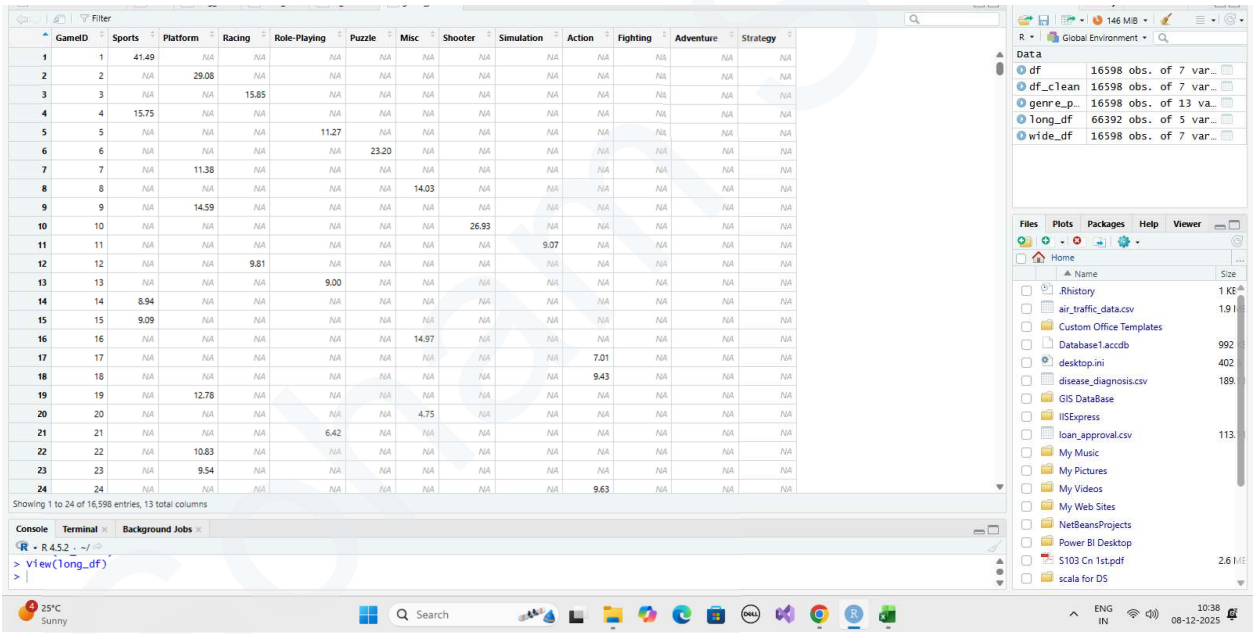


	GameID	Name	Genre	NA_Sales	EU_Sales	JP_Sales	Other_Sales
1	1	Wii Sports	Sports	41.49	29.02	3.77	8.46
2	2	Super Mario Bros.	Platform	29.08	3.58	6.81	0.77
3	3	Mario Kart Wii	Racing	15.85	12.88	3.79	3.31
4	4	Wii Sports Resort	Sports	15.75	11.01	3.28	2.96
5	5	Pokemon Red/Pokemon Blue	Role-Playing	11.27	8.89	10.22	1.00
6	6	Tetris	Puzzle	23.20	2.26	4.22	0.58
7	7	New Super Mario Bros.	Platform	11.38	9.23	6.50	2.90
8	8	Wii Play	Misc	14.03	9.20	2.93	2.85
9	9	New Super Mario Bros. Wii	Platform	14.59	7.06	4.70	2.26
10	10	Duck Hunt	Shooter	26.93	0.63	0.28	0.47
11	11	Nintendogs	Simulation	9.07	11.00	1.93	2.75
12	12	Mario Kart DS	Racing	9.81	7.57	4.13	1.92
13	13	Pokemon Gold/Pokemon Silver	Role-Playing	9.00	6.18	7.20	0.71
14	14	Wii Fit	Sports	8.94	8.03	3.60	2.15
15	15	Wii Fit Plus	Sports	9.09	8.59	2.53	1.79
16	16	Kinect Adventures!	Misc	14.97	4.94	0.24	1.67
17	17	Grand Theft Auto V	Action	7.01	9.27	0.97	4.14
18	18	Grand Theft Auto: San Andreas	Action	9.43	0.40	0.41	10.57
19	19	Super Mario World	Platform	12.78	3.75	3.54	0.55
20	20	Brain Age: Train Your Brain in Minutes a Day	Misc	4.75	9.26	4.16	2.05
21	21	Pokemon Diamond/Pokemon Pearl	Role-Playing	6.42	4.52	6.04	1.37
22	22	Super Mario Land	Platform	10.83	2.71	4.18	0.42
23	23	Super Mario Bros. 3	Platform	9.54	3.44	3.84	0.46
24	24	Grand Theft Auto V	Action	9.63	5.31	0.06	1.38

Showing 1 to 24 of 16,598 entries, 7 total columns

```
> View(wide_df)
>
```



	GameID	Sports	Platform	Racing	Role-Playing	Puzzle	Misc	Shooter	Simulation	Action	Fighting	Adventure	Strategy
1	1	41.49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	2	NA	29.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	3	NA	NA	15.85	NA	NA	NA	NA	NA	NA	NA	NA	NA
4	4	15.75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5	5	NA	NA	NA	11.27	NA	NA	NA	NA	NA	NA	NA	NA
6	6	NA	NA	NA	NA	23.20	NA	NA	NA	NA	NA	NA	NA
7	7	NA	11.38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8	8	NA	NA	NA	NA	NA	14.03	NA	NA	NA	NA	NA	NA
9	9	NA	14.59	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10	10	NA	NA	NA	NA	NA	NA	26.93	NA	NA	NA	NA	NA
11	11	NA	NA	NA	NA	NA	NA	NA	9.07	NA	NA	NA	NA
12	12	NA	NA	9.81	NA	NA	NA	NA	NA	NA	NA	NA	NA
13	13	NA	NA	NA	9.00	NA	NA	NA	NA	NA	NA	NA	NA
14	14	8.94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15	15	9.09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
16	16	NA	NA	NA	NA	NA	14.97	NA	NA	NA	NA	NA	NA
17	17	NA	NA	NA	NA	NA	NA	NA	NA	7.01	NA	NA	NA
18	18	NA	NA	NA	NA	NA	NA	NA	NA	9.43	NA	NA	NA
19	19	NA	12.78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20	20	NA	NA	NA	NA	NA	4.75	NA	NA	NA	NA	NA	NA
21	21	NA	NA	NA	6.42	NA	NA	NA	NA	NA	NA	NA	NA
22	22	NA	10.83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23	23	NA	9.54	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24	24	NA	NA	NA	NA	NA	NA	NA	NA	9.63	NA	NA	NA

Showing 1 to 24 of 16,598 entries, 13 total columns

```
> View(long_df)
>
```

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