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In [3]: import pandas as pd
import os

# Получаем текущую директорию и формируем путь к файлу
current_dir = os.getcwd()
file_path = os.path.join(current_dir, 'googleplaystore.csv')

# Загрузка DataFrame
df = pd.read_csv(file_path)

# Предобработка данных
# 1. Изменение названий всех столбцов, приведя их к нижнему регистру
df.columns = df.columns.str.lower()

# 2. Вывод основных статистик по категориальным столбцам
print("\n#2 Основные статистики по категориальным столбцам:")
print(df.describe(include=['object']))

# Преобразование столбца `rating` из строк в числа для выполнения числовых
df['rating'] = pd.to_numeric(df['rating'], errors='coerce')

# 3. Вывод части датафрейма для приложений из категории "Art & Design" с
print("\n#3 Приложения из категории 'Art & Design' с рейтингом больше 4.5")
filtered_df = df[(df['category'].str.upper() == 'ART_AND_DESIGN') & (df['
print(filtered_df)

# 4. Количество игр в рейтинге с разбиением 100 и вывод топ-10 игр по кол
games_df = df[df['category'].str.upper() == 'GAME']
rating_counts = games_df['rating'].value_counts(bins=100).sort_values(asc
print("\n#4 Топ-10 игр по количеству в рейтинге:")
print(rating_counts)

# 5. Применение функции для категоризации рейтинга
def categorize_rating(rating):
    if rating >= 4.5:
        return 'High rating'
    elif rating > 3.8: # Исправлено условие для соответствия условию зад
        return 'Middle rating'
    else:
        return 'Low rating'

df['categorical_rating'] = df['rating'].apply(categorize_rating)
print("\n#5 Добавлен новый столбец с категоризированным рейтингом:")

# 6. Вывод количества уникальных значений в столбцах, отсортированных по
print("\n#6 Количество уникальных значений в столбцах, отсортированных по
print(df.nunique().sort_values(ascending=False))

```

#2 Основные статистики по категориальным столбцам:

	app	category	reviews	size	installs	type	\
count	10841	10841	10841	10841	10841	10840	
unique	9660	34	6002	462	22	3	
top	ROBLOX	FAMILY	0	Varies with device	1,000,000+	Free	
freq	9	1972	596	1695	1579	10039	

	content	rating	genres	last updated	current ver	android v
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er					
count	10840	10841	10841	10833	108
38					
unique	6	120	1378	2832	
33					
top	Everyone	Tools	August 3, 2018	Varies with device	4.1 and
up					
freq	8714	842	326	1459	24
51					

#3 Приложения из категории 'Art & Design' с рейтингом больше 4.5:

	app	category \
2	U Launcher Lite – FREE Live Cool Themes, Hide ...	ART_AND_DESIGN
9	Kids Paint Free – Drawing Fun	ART_AND_DESIGN
13	Mandala Coloring Book	ART_AND_DESIGN
16	Photo Designer – Write your name with shapes	ART_AND_DESIGN
19	ibis Paint X	ART_AND_DESIGN
22	Superheroes Wallpapers 4K Backgrounds	ART_AND_DESIGN
24	HD Mickey Minnie Wallpapers	ART_AND_DESIGN
25	Harley Quinn wallpapers HD	ART_AND_DESIGN
26	Colorfit – Drawing & Coloring	ART_AND_DESIGN
34	I Creative Idea	ART_AND_DESIGN
36	UNICORN – Color By Number & Pixel Art Coloring	ART_AND_DESIGN
38	PIP Camera – PIP Collage Maker	ART_AND_DESIGN
45	Canva: Poster, banner, card maker & graphic de...	ART_AND_DESIGN
46	Install images with music to make video withou...	ART_AND_DESIGN
3982	Cardi B Wallpaper	ART_AND_DESIGN
4749	X Launcher: With OS11 Style Theme & Control Ce...	ART_AND_DESIGN
4755	X Launcher Pro: PhoneX Theme, OS11 Control Center	ART_AND_DESIGN
4759	X Launcher Pro – IOS Style Theme & Control Center	ART_AND_DESIGN
4764	X Launcher Prime: With OS Style Theme & No Ads	ART_AND_DESIGN
5254	AJ Styles HD Wallpapers	ART_AND_DESIGN
6930	Fantasy theme dark bw black building	ART_AND_DESIGN
8888	Spring flowers theme couleurs d t space	ART_AND_DESIGN

	rating	reviews	size	installs	type	price	content	rating \
2	4.7	87510	8.7M	5,000,000+	Free	0.00	Everyone	
9	4.7	121	3.1M	10,000+	Free	0.00	Everyone	
13	4.6	4326	21M	100,000+	Free	0.00	Everyone	
16	4.7	3632	5.5M	500,000+	Free	0.00	Everyone	
19	4.6	224399	31M	10,000,000+	Free	0.00	Everyone	
22	4.7	7699	4.2M	500,000+	Free	0.00	Everyone 10+	
24	4.7	118	23M	50,000+	Free	0.00	Everyone	
25	4.8	192	6.0M	10,000+	Free	0.00	Everyone	
26	4.7	20260	25M	500,000+	Free	0.00	Everyone	
34	4.7	353	4.2M	10,000+	Free	0.00	Teen	
36	4.7	8145	24M	500,000+	Free	0.00	Everyone	
38	4.7	158	11M	10,000+	Free	0.00	Everyone	
45	4.7	174531	24M	10,000,000+	Free	0.00	Everyone	
46	4.6	1070	26M	100,000+	Free	0.00	Everyone	
3982	4.8	253	3.7M	50,000+	Free	0.00	Everyone	
4749	4.7	5754	4.4M	100,000+	Free	0.00	Everyone	
4755	4.7	801	3.5M	5,000+	Paid	1.99	Everyone	
4759	4.8	1216	8.6M	10,000+	Paid	1.99	Everyone	
4764	4.7	149	3.5M	1,000+	Paid	1.99	Everyone	
5254	4.8	48	25M	5,000+	Free	0.00	Everyone	
6930	4.8	41	1.9M	5,000+	Free	0.00	Everyone	

8888	5.0	1	2.9M	100+	Free	0.00	Everyone
		genres	last updated	current ver	android ver		
2		Art & Design	August 1, 2018	1.2.4	4.0.3 and up		
9	Art & Design;Creativity		July 3, 2018	2.8	4.0.3 and up		
13		Art & Design	June 26, 2018	1.0.4	4.4 and up		
16		Art & Design	July 31, 2018	3.1	4.1 and up		
19		Art & Design	July 30, 2018	5.5.4	4.1 and up		
22		Art & Design	July 12, 2018	2.2.6.2	4.0.3 and up		
24		Art & Design	July 7, 2018	1.1.3	4.1 and up		
25		Art & Design	April 25, 2018	1.5	3.0 and up		
26	Art & Design;Creativity		October 11, 2017	1.0.8	4.0.3 and up		
34		Art & Design	April 27, 2018	1.6	4.1 and up		
36	Art & Design;Creativity		August 2, 2018	1.0.9	4.4 and up		
38		Art & Design	November 29, 2017	1.3	4.0.3 and up		
45		Art & Design	July 31, 2018	1.6.1	4.1 and up		
46		Art & Design	November 14, 2017	1.6	4.1 and up		
3982		Art & Design	November 1, 2017	1.0.0	4.0 and up		
4749		Art & Design	July 30, 2018	2.1.2	4.1 and up		
4755		Art & Design	July 30, 2018	2.1.2	4.1 and up		
4759		Art & Design	June 26, 2018	1.0.0	4.1 and up		
4764		Art & Design	July 30, 2018	1.2.2	4.1 and up		
5254		Art & Design	August 4, 2018	1.1.1	4.1 and up		
6930		Art & Design	March 20, 2018	1.0.2	4.0 and up		
8888		Art & Design	April 18, 2018	1.0.2	4.0 and up		

#4 Топ-10 игр по количеству в рейтинге:

(4.48, 4.52]	174
(4.36, 4.4]	166
(4.28, 4.32]	151
(4.56, 4.6]	121
(4.16, 4.2]	115
(4.08, 4.12]	72
(4.68, 4.72]	67
(3.96, 4.0]	55
(3.76, 3.8]	41
(3.88, 3.92]	35

Name: rating, dtype: int64

#5 Добавлен новый столбец с категоризированным рейтингом:

#6 Количество уникальных значений в столбцах, отсортированных по убыванию:

app	9660
reviews	6002
current ver	2832
last updated	1378
size	462
genres	120
price	92
rating	40
category	34
android ver	33
installs	22
content rating	6
type	3
categorical_rating	3

dtype: int64

In []: