

ANALYZING KENYA'S PERFORMANCE IN THE OLYMPIC GAMES

Kenya is known to be among the best African performers in the Olympic games over the years. Our forte is usually in the mid and long distance athletics races. We're not known for gymnastics, swimming or even short races for that matter. In this project I seek to answer the following questions among many others:

1. Which was Kenya's best year?
2. Who are the best performers?
3. How do male and female athletes compare?
4. Are we in our glory years?

To do this we will first import the necessary libraries and our dataset for analysing. The data was scraped from the Olympics Website and converted to xlsx format.

```
In [1]: import pandas as pd
```

```
In [2]: import numpy as np
```

```
In [3]: import matplotlib.pyplot as plt
```

Our Bread And Butter

Kenya's dominance in athletics is undeniable, with numerous Olympic and World Championship medals won in long-distance running events. The country's passion for running can be traced back to its rich history and culture, with running being an integral part of everyday life for many Kenyans. The success of Kenyan athletes can be attributed to factors such as high-altitude training, a disciplined work ethic, and a deep-rooted sense of community support. Overall, Kenya's achievements in athletics serve as a source of national pride and inspiration, and continue to fuel the country's passion for the sport.

```
In [11]: olympic_sport = pd.read_excel(r'C:\Users\Jacob\Desktop\KenyaOlympicsDataset.xlsx',
```

```
In [12]: print(olympic_sport)
```

	Sport	Gold	Silver	Bronze	Total
0	Athletics	34	41	31	106
1	Boxing	1	1	5	7
2	Totals (2 entries)	35	42	36	113

From the table above we see that Kenya's success in the Olympic games is predominantly in the athletics competitions.

```
In [32]: olympic_sport.reset_index()
```

```
Out[32]:
```

	index	Sport	Gold	Silver	Bronze	Total
0	0	Athletics	34	41	31	106
1	1	Boxing	1	1	5	7

```
In [33]: print(olympic_sport)
```

	Sport	Gold	Silver	Bronze	Total
0	Athletics	34	41	31	106
1	Boxing	1	1	5	7

```
In [36]: olympic_sport_t = olympic_sport.T
```

```
In [37]: print(olympic_sport_t)
```

	0	1
Sport	Athletics	Boxing
Gold	34	1
Silver	41	1
Bronze	31	5
Total	106	7

```
In [44]: olympic_sport_t.columns = olympic_sport_t.iloc[0]
```

```
In [ ]: # cleaning up our data frame
```

```
In [48]: olympic_sport_t.drop(labels = 'Sport', axis = 0, inplace = True)
```

```
In [49]: print(olympic_sport_t)
```

	Athletics	Boxing	AthleticsBoxing
Gold	34	1	35
Silver	41	1	42
Bronze	31	5	36
Total	106	7	113

```
In [52]: olympic_sport_t['% Athletics'] = olympic_sport_t['Athletics'] / olympic_sport_t['A
```

```
In [53]: olympic_sport_t['% Boxing'] = olympic_sport_t['Boxing'] / olympic_sport_t['Athleti
```

```
In [54]: print(olympic_sport_t)
```

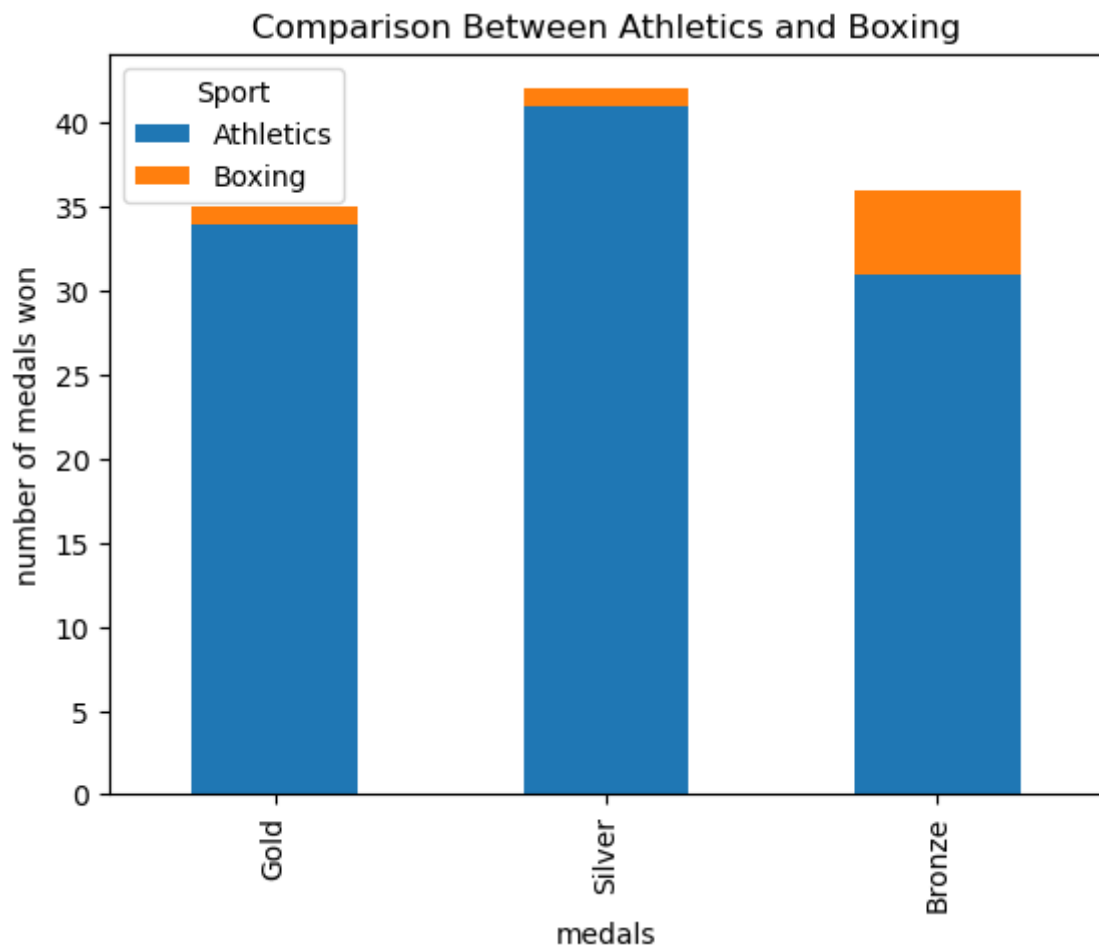
	Athletics	Boxing	AthleticsBoxing	% Athletics	% Boxing
Gold	34	1	35	0.971429	0.028571
Silver	41	1	42	0.97619	0.02381
Bronze	31	5	36	0.861111	0.138889
Total	106	7	113	0.938053	0.061947

From our calculations above we see that ~94% of Kenya's medals in the Olympic games have historically come from Athletics. It is safe to conclude that our strength is predominantly in Athletics.

```
In [79]: oly_sports = olympic_sport_t.drop(labels = 'Total', axis = 0, inplace = False)
```

```
In [84]: oly_sports[['Athletics', 'Boxing']].plot(kind = 'bar', stacked = True)
plt.title('Comparison Between Athletics and Boxing')
plt.xlabel('medals')
plt.ylabel('number of medals won')
```

```
Out[84]: Text(0, 0.5, 'number of medals won')
```



Are We Living In The Glory Years?

In order to analyze Kenya's best years, we'll need to import the file first.

```
In [90]: performance = pd.read_excel(r'C:\Users\Jacob\Desktop\KenyaOlympicsDataset.xlsx', sheet_name='Performance')
```

We print the first five rows of the table to get a general feel for the table.

```
In [92]: print(performance.head())
```

	Games	City	Athletes	Gold	Silver	Bronze	Total	Rank
0	1956	Melbourne	25	0	0	0	0	0
1	1960	Rome	27	0	0	0	0	0
2	1964	Tokyo	37	0	0	1	1	35
3	1968	Mexico City	39	3	4	2	9	14
4	1972	Munich	57	2	3	4	9	19

Now we'll print the whole table.

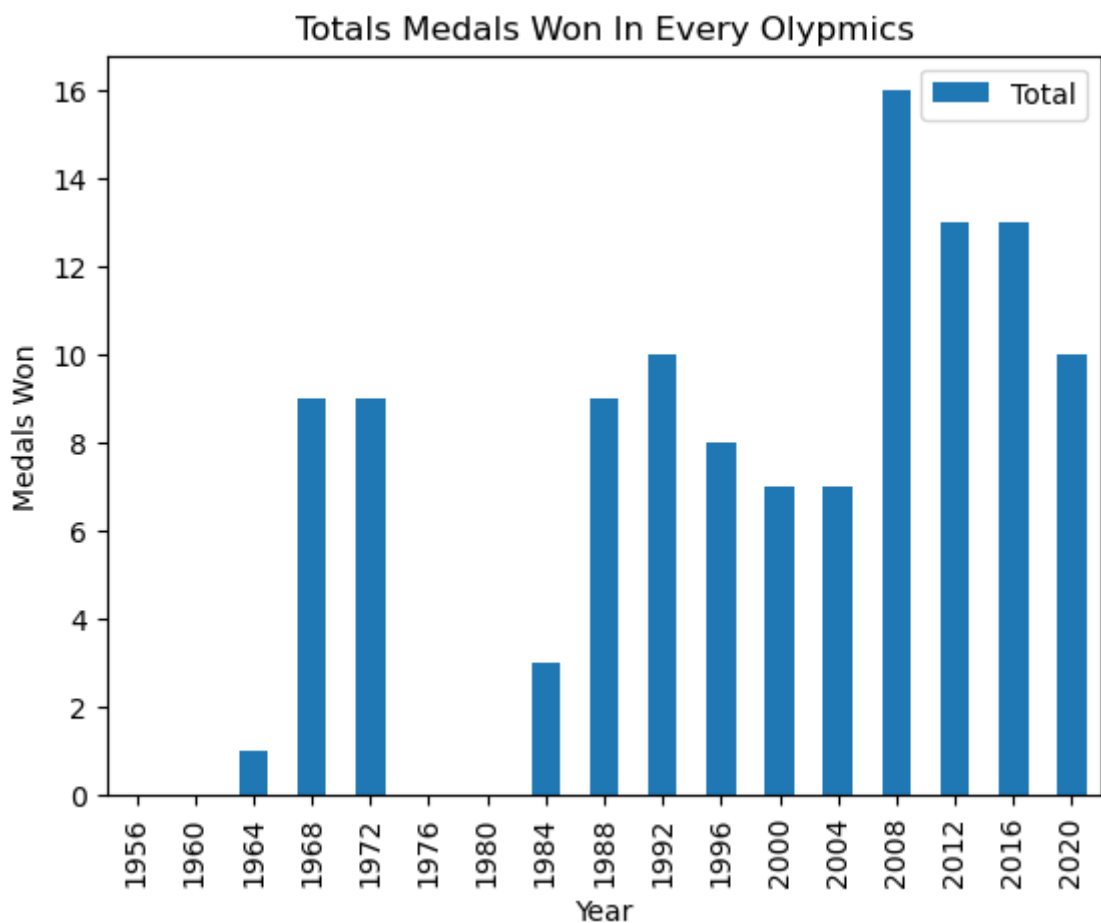
```
In [93]: print(performance)
```

	Games	City	Athletes	Gold	Silver	Bronze	Total	Rank
0	1956	Melbourne	25	0	0	0	0	0
1	1960	Rome	27	0	0	0	0	0
2	1964	Tokyo	37	0	0	1	1	35
3	1968	Mexico City	39	3	4	2	9	14
4	1972	Munich	57	2	3	4	9	19
5	1976	Montreal	0	0	0	0	0	0
6	1980	Moscow	0	0	0	0	0	0
7	1984	Los Angeles	61	1	0	2	3	23
8	1988	Seoul	74	5	2	2	9	13
9	1992	Barcelona	51	2	4	2	10	21
10	1996	Atlanta	52	1	4	3	8	38
11	2000	Sydney	56	2	3	2	7	29
12	2004	Athens	46	1	4	2	7	41
13	2008	Beijing	48	6	4	6	16	13
14	2012	London	47	2	4	7	13	28
15	2016	Rio de Janeiro	89	6	6	1	13	15
16	2020	Tokyo	85	4	4	2	10	19

We'll now use a graph to get a feel for Kenya's performance at the Olympics game over the years.

```
In [126... performance.plot(kind = 'bar', subplots = False, x = 'Games', y = 'Total')
plt.title("Totals Medals Won In Every Olypmics")
plt.ylabel('Medals Won')
plt.xlabel('Year')
```

Out[126]: Text(0.5, 0, 'Year')



From the graph above we can see that our best years were between 2008 and 2020, with 2008 being our most succesful year in terms of total number of medals won. 1956 and 1960 are blank because we did not win any medals whereas 1976 and 1980 are blank because

Kenya boycotted the games. Kenya was among 29 other countries that boycotted the games due to the refusal of the International Olympics Committee to ban New Zealand after the New Zealand national union rugby team had toured apartheid South Africa in 1976. Nevertheless, analysing the data in it's entirety it would be safe to conclude that had we participated in 1976 and 1980, we would have won some medals.

Another measure of Kenya's performance would also be the rank attained at the end of the games.

```
In [116... print(performance.sort_values(by = 'Rank', ascending = True))
```

	Games	City	Athletes	Gold	Silver	Bronze	Total	Rank
0	1956	Melbourne	25	0	0	0	0	0
1	1960	Rome	27	0	0	0	0	0
6	1980	Moscow	0	0	0	0	0	0
5	1976	Montreal	0	0	0	0	0	0
13	2008	Beijing	48	6	4	6	16	13
8	1988	Seoul	74	5	2	2	9	13
3	1968	Mexico City	39	3	4	2	9	14
15	2016	Rio de Janeiro	89	6	6	1	13	15
4	1972	Munich	57	2	3	4	9	19
16	2020	Tokyo	85	4	4	2	10	19
9	1992	Barcelona	51	2	4	2	10	21
7	1984	Los Angeles	61	1	0	2	3	23
14	2012	London	47	2	4	7	13	28
11	2000	Sydney	56	2	3	2	7	29
2	1964	Tokyo	37	0	0	1	1	35
10	1996	Atlanta	52	1	4	3	8	38
12	2004	Athens	46	1	4	2	7	41

We'll remove the rows ranked 0 because they're not necessary for our this particular analyses

```
In [124... perf = performance.drop(labels = [0, 1, 5, 6], axis = 0, inplace = False)
```

```
In [125... print(perf.sort_values(by = 'Rank', ascending = True))
```

	Games	City	Athletes	Gold	Silver	Bronze	Total	Rank
8	1988	Seoul	74	5	2	2	9	13
13	2008	Beijing	48	6	4	6	16	13
3	1968	Mexico City	39	3	4	2	9	14
15	2016	Rio de Janeiro	89	6	6	1	13	15
4	1972	Munich	57	2	3	4	9	19
16	2020	Tokyo	85	4	4	2	10	19
9	1992	Barcelona	51	2	4	2	10	21
7	1984	Los Angeles	61	1	0	2	3	23
14	2012	London	47	2	4	7	13	28
11	2000	Sydney	56	2	3	2	7	29
2	1964	Tokyo	37	0	0	1	1	35
10	1996	Atlanta	52	1	4	3	8	38
12	2004	Athens	46	1	4	2	7	41

From the table above we see that Kenya's best years in terms of rankings were in '88, '08, '68, '16, '72 and '20 respectively. Apart from garnering the most medals in the years 2008, 2016 and 2020. We also see that these three years are in the top 6 years in terms of ranking.

In order to assess the true nature of Kenya's performances over the years. We will also seek to rank the performances in terms of gold medals won.

In [127...

```
print(performance.sort_values(by = 'Gold', ascending = False))
```

	Games	City	Athletes	Gold	Silver	Bronze	Total	Rank
13	2008	Beijing	48	6	4	6	16	13
15	2016	Rio de Janeiro	89	6	6	1	13	15
8	1988	Seoul	74	5	2	2	9	13
16	2020	Tokyo	85	4	4	2	10	19
3	1968	Mexico City	39	3	4	2	9	14
4	1972	Munich	57	2	3	4	9	19
9	1992	Barcelona	51	2	4	2	10	21
11	2000	Sydney	56	2	3	2	7	29
14	2012	London	47	2	4	7	13	28
7	1984	Los Angeles	61	1	0	2	3	23
10	1996	Atlanta	52	1	4	3	8	38
12	2004	Athens	46	1	4	2	7	41
5	1976	Montreal	0	0	0	0	0	0
6	1980	Moscow	0	0	0	0	0	0
1	1960	Rome	27	0	0	0	0	0
2	1964	Tokyo	37	0	0	1	1	35
0	1956	Melbourne	25	0	0	0	0	0

Once again, Kenya's showings in Beijing('08), Rio('16) and Tokyo('20) fall in the top five categories. With 2008 and 2016 being tied for six gold medals. From the three main factors:
i. Total medals won ii. Ranking iii. Total gold medals won We can conclude that Kenya's best years fall between 2008 and 2020.

Merriam-Webster defines glory years as a time in the past that will be remembered for great success and happiness. We can safely say that we are fortunate to be living in our glory years.

The Heroes and the Heroines

We have seen the statistics behind Kenya's success but now we seek to put some humanity into our data by checking out the beloved performers who have made our country proud time and again.

To do this we will import data into our notebook for analysis.

In [128...

```
performers = pd.read_excel(r'C:\Users\Jacob\Desktop\KenyaOlympicsDataset.xlsx', sh
```

In [133...

```
print(performers[['Athlete', 'Sex', 'Events', 'Gold', 'Silver', 'Bronze']])
```

	Athlete	Sex	Events	Gold	Silver	Bronze
0	Kipchoge Keino	M	1500 m, 5000 m, 3000 m st.	2	2	0
1	Eliud Kipchoge	M	5000 m, marathon	2	1	1
2	Ezekiel Kemboi	M	3000 m st.	2	0	0
3	David Rudisha	M	800 m	2	0	0
4	Faith Kipyegon	F	1500 m	2	0	0
5	Vivian Cheruiyot	F	5000 m, 10,000 m	1	2	1
6	Charles Asati	M	4 x 400 m	1	1	0
7	Munyoro Nyamau	M	4 x 400 m	1	1	0
8	Brimin Kipruto	M	3000 m st.	1	1	0
9	Julius Sang	M	400 m, 4 x 400 m	1	0	1
10	Naftali Temu	M	5000 m, 10,000 m	1	0	1
11	Pamela Jelimo	F	800 m	1	0	1
12	Paul Bitok	M	5000 m	0	2	0
13	Paul Tergat	M	10,000 m	0	2	0
14	Catherine Ndereba	F	Marathon	0	2	0
15	Wilson Kiprugut	M	800 m	0	1	1
16	Philip Waruinge	M	Featherweight	0	1	1
17	Erick Wainaina	M	Marathon	0	1	1
18	Bernard Lagat	M	1500 m	0	1	1

The table above shows us the list of Kenya's Olympic heroes and heroines over the years. We'd love to separate the male and female performers and also the athletes and the boxers so we can get a better feel of their achievements.

```
In [135... female_performers = performers[performers['Sex'] == 'F']
male_performers = performers[performers['Sex'] == 'M']
boxers = performers[performers['Sport'] == 'Boxing']
```

We'll start with the female athletes.

```
In [136... print(female_performers)
```

	Athlete	Sex	Sport	Events	Years	Gold	\
4	Faith Kipyegon	F	Athletics	1500 m	2012-2020	2	
5	Vivian Cheruiyot	F	Athletics	5000 m, 10,000 m	2000-2016	1	
11	Pamela Jelimo	F	Athletics	800 m	2008-2012	1	
14	Catherine Ndereba	F	Athletics	Marathon	2004-2008	0	

	Silver	Bronze	Total
4	0	0	2
5	2	1	4
11	0	1	2
14	2	0	2

From the results above we see that all female athletes competed in the mid-distance i.e 800m and long-distance i.e 1500m, 5000, 10000m and marathon races. There are more female athletes but this is a comprehensive list that showcases the women who have been able to win more than one medal at the Olympics. An interesting thing to note would also be that all the multi-medalists have been competitors from this century. It's beautiful to see the contribution that the women have made especially considering we saw that Kenya's glory years truly started in the late 2000's. What we see is that the women have had their say in Kenya's dominance as well.

```
In [137... print(male_performers)
```

	Athlete	Sex	Sport	Events	Years	\
0	Kipchoge Keino	M	Athletics	1500 m, 5000 m, 3000 m st.	1964-1972	
1	Eliud Kipchoge	M	Athletics	5000 m, marathon	2004-2020	
2	Ezekiel Kemboi	M	Athletics	3000 m st.	2004-2016	
3	David Rudisha	M	Athletics	800 m	2012-2016	
6	Charles Asati	M	Athletics	4 x 400 m	1968-1976	
7	Munyoro Nyamau	M	Athletics	4 x 400 m	1968-1972	
8	Brimin Kipruto	M	Athletics	3000 m st.	2004-2016	
9	Julius Sang	M	Athletics	400 m, 4 x 400 m	1968-1972	
10	Naftali Temu	M	Athletics	5000 m, 10,000 m	1964-1972	
12	Paul Bitok	M	Athletics	5000 m	1992-1996	
13	Paul Tergat	M	Athletics	10,000 m	1996-2000	
15	Wilson Kiprugut	M	Athletics	800 m	1964-1968	
16	Philip Waruinge	M	Boxing	Featherweight	1968-1972	
17	Erick Wainaina	M	Athletics	Marathon	1996-2000	
18	Bernard Lagat	M	Athletics	1500 m	2000-2004	

	Gold	Silver	Bronze	Total
0	2	2	0	4
1	2	1	1	4
2	2	0	0	2
3	2	0	0	2
6	1	1	0	2
7	1	1	0	2
8	1	1	0	2
9	1	0	1	2
10	1	0	1	2
12	0	2	0	2
13	0	2	0	2
15	0	1	1	2
16	0	1	1	2
17	0	1	1	2
18	0	1	1	2

For the men we see that there is a long standing tradition of achievements that date back to the sixties with Kipchoge Keino paving the way with 2 gold medals and 2 silver medals. The other athletes with more than 1 gold medal are Eliud Kipchoge, Ezekiel Kemboi and David Rudisha.

In [138...

```
print(boxers)
```

	Athlete	Sex	Sport	Events	Years	Gold	Silver	\
16	Philip Waruinge	M	Boxing	Featherweight	1968-1972	0	1	

	Bronze	Total
16	1	2

In boxing, we see that there have not been female medalists at the Olympics and we have solely been represented by the men. Philip Waruinge who hailed in the late sixties and early seventies helped paved the success culture by winning a silver and a bronze medal.

Now we seek to find the full list of medalists

In [140...

```
medalists = pd.read_excel(r'C:\Users\Jacob\Desktop\KenyaOlympicsDataset.xlsx', sheet_name='Medalists')
```

We filter the dataframe in order to categorise by the type of medal won


```
In [142... gold_medalists = medalists[medalists['Medal'] == 'Gold']
silver_medalists = medalists[medalists['Medal'] == 'Silver']
bronze_medalists = medalists[medalists['Medal'] == 'Bronze']
```

Gold medalists and the year they won

```
In [146... print(gold_medalists[['Name(s)', 'Games']])
```

	Name(s)	Games
1	Naftali Temu	1968
2	Kipchoge Keino	1968
3	Amos Biwott	1968
10	Kipchoge Keino	1972
11	Charles Asati, Munyoro Nyamau, Robert Ouko, Ju...	1972
19	Julius Korir	1984
22	Julius Kariuki	1988
23	John Ngugi	1988
24	Paul Ereng	1988
25	Peter Rono	1988
26	Robert Wangila	1988
31	Matthew Birir	1992
32	William Tanui	1992
39	Joseph Keter	1996
47	Noah Ngeny	2000
48	Reuben Kosgei	2000
54	Ezekiel Kemboi	2004
61	Asbel Kipruto Kiprop	2008
62	Brimin Kiprop Kipruto	2008
63	Wilfred Bungei	2008
64	Samuel Wanjiru	2008
65	Pamela Jelimo	2008
66	Nancy Lagat	2008
77	Ezekiel Kemboi	2012
78	David Rudisha	2012
90	David Rudisha	2016
91	Conseslus Kipruto	2016
92	Eliud Kipchoge	2016
93	Faith Kipyegon	2016
94	Jemimah Sumgong	2016
95	Vivian Cheruiyot	2016
103	Emmanuel Korir	2020
104	Faith Kipyegon	2020
105	Peres Jepchirchir	2020
106	Eliud Kipchoge	2020

Silver medalists and the year they won

```
In [147... print(silver_medalists[['Name(s)', 'Games']])
```

	Name(s)	Games
4	Benjamin Kogo	1968
5	Daniel Rudisha, Munyoro Nyamau, Naftali Bon, C...	1968
6	Kipchoge Keino	1968
8	Wilson Kiprugut	1968
12	Kipchoge Keino	1972
13	Ben Jipcho	1972
14	Philip Waruinge	1972
27	Peter Koech	1988
28	Douglas Wakiihuri	1988
33	Richard Chelimo	1992
34	Patrick Sang	1992
35	Paul Bitok	1992
36	Nixon Kiprotich	1992
40	Paul Tergat	1996
41	Moses Kiptanui	1996
42	Paul Bitok	1996
43	Pauline Konga	1996
49	Paul Tergat	2000
50	Wilson Boit Kipketer	2000
51	Erick Wainaina	2000
55	Bernard Lagat	2004
56	Brimin Kipruto	2004
57	Isabella Ochichi	2004
58	Catherine Ndereba	2004
67	Janeth Jepkosgei Busienei	2008
68	Catherine Ndereba	2008
69	Eunice Jepkorir	2008
70	Eliud Kipchoge	2008
79	Sally Kipyego	2012
80	Priscah Jeptoo	2012
81	Vivian Cheruiyot	2012
82	Abel Kirui	2012
96	Hellen Obiri	2016
97	Hyvin Jepkemoi Kiyeng	2016
98	Vivian Cheruiyot	2016
99	Boniface Mucheru Tumuti	2016
100	Paul Tanui	2016
101	Julius Yego	2016
107	Hellen Obiri	2020
108	Ferguson Rotich	2020
109	Brigid Kosgei	2020
110	Timothy Cheruiyot	2020

Bronze medalists and they year they won

```
In [148... print(bronze_medalists[['Name(s)', 'Games']])
```

	Name(s)	Games
0	Wilson Kiprugut	1964
7	Naftali Temu	1968
9	Philip Waruinge	1968
15	Julius Sang	1972
16	Mike Boit	1972
17	Samuel Mbugua	1972
18	Dick Murunga	1972
20	Michael Musyoki	1984
21	Ibrahim Bilali	1984
29	Kipkemboi Kimeli	1988
30	Chris Sande	1988
37	William Mutwol	1992
38	Samson Kitur	1992
44	Stephen Kipkorir	1996
45	Fred Onyancha	1996
46	Erick Wainaina	1996
52	Bernard Lagat	2000
53	Joyce Chepchumba	2000
59	Paul Kipsiele Koech	2004
60	Eliud Kipchoge	2004
71	Richard Kipkemboi Mateelong	2008
72	Micah Kogo	2008
73	Edwin Cheruiyot Soi	2008
74	Alfred Kirwa Yego	2008
75	Sylvia Kibet	2008
76	Linnet Masai	2008
83	Vivian Cheruiyot	2012
84	Abel Mutai	2012
85	Milcah Chemos Cheywa	2012
86	Timothy Kitum	2012
87	Thomas Longosiwa	2012
88	Wilson Kipsang Kiprotich	2012
89	Pamela Jelimo	2012
102	Margaret Wambui	2016
111	Benjamin Kigen	2020
112	Hyvin Kiyeng Jepkemoi	2020

Kenyan athletes have demonstrated time and again their prowess and determination at the Olympics, winning several medals in various disciplines. Their hard work and dedication to their craft, coupled with a deep sense of national pride and community support, have propelled them to the top of their respective events. Their achievements serve as an inspiration to many and showcase Kenya's commitment to excellence in athletics. We applaud their outstanding performances and celebrate their remarkable accomplishments on the world stage.