BYTEWISE LIMITED FELLOWSHIP

PRACTICE TEST 01

MUHAMMAD ANAS

Q1) our First NumPy Array

import numpy as np

```
baseball = [180, 225, 121, 110, 218, 176, 219, 165]
```

np_baseball = np.array(baseball)

print(type(np_baseball))

Q2) Baseball players' height

```
height_in = [62, 85, 68, 74, 79, 81, 66, 63]
```

np_height_in = np.array(height_in)

print("Heights in inches:", np_height_in)

np_height_m = np_height_in * 0.0254

print("Heights in meters:", np_height_m)

Baseball players' height

```
height_in = [62, 85, 68, 74, 79, 81, 66, 63]

np_height_in = np.array(height_in)
```

[8] ✓ 0.0s Python

```
print("Heights in inches:", np_height_in)
```

[9] ✓ 0.0s Python

```
Heights in inches: [62 85 68 74 79 81 66 63]
```

```
np_height_m = np_height_in * 0.0254
```

[10] ✓ 0.0s Python

```
print("Heights in meters:", np_height_m)
```

[11] ✓ 0.0s Python

```
Heights in meters: [1.5748 2.159  1.7272 1.8796 2.0066 2.0574 1.6764 1.6002]
```

Q3) Baseball player's BMI

weight_lb = [180, 215, 210, 210, 188, 176, 209, 200]

np_weight_kg = np.array(weight_lb) * 0.453592

print("Weights in kilograms:", np_weight_kg)

bmi = np_weight_kg / (np_height_m ** 2)

print("BMI:", bmi)

Baseball player's BMI

```
weight_lb = [180, 215, 210, 210, 188, 176, 209, 200]
```

[12] ✓ 0.0s Python

```
np_weight_kg = np.array(weight_lb) * 0.453592
```

[13] ✓ 0.0s Python

```
print("Weights in kilograms:", np_weight_kg)
```

[14] ✓ 0.0s Python

```
Weights in kilograms: [81.64656  97.52228  95.25432  95.25432  85.275296 79.832192 94.800728
 90.7184  ]
```

```
bmi = np_weight_kg / (np_height_m ** 2)
```

[15] ✓ 0.0s Python

```
print("BMI:", bmi)
```

[16] ✓ 0.0s Python

```
BMI: [32.92206584 20.92177665 31.93003704 26.96210579 21.1788132  18.859952
 33.73310888 35.42801744]
```

Q4) Lightweight baseball players

height_in = [62, 85, 68, 74, 79, 81, 66, 63]

weight_lb = [180, 215, 210, 210, 188, 176, 209, 200]

np_height_in = np.array(height_in)

np_height_m = np_height_in * 0.0254

np_weight_kg = np.array(weight_lb) * 0.453592

bmi = np_weight_kg / (np_height_m ** 2)

light = bmi < 21

print("Boolean array where BMI is below 21:", light)

print("BMIs of players with BMI below 21:", bmi[light])

Q)5

positions = ['GK', 'M', 'A', 'D', 'M', 'A', 'GK', 'D', 'M', 'A']

heights = [191, 184, 185, 180, 175, 170, 195, 182, 178, 177]

np_positions = np.array(positions)

np_heights = np.array(heights)

gk_heights = np_heights[np_positions == 'GK']

other_heights = np_heights[np_positions != 'GK']

print("Median height of goalkeepers:", np.median(gk_heights))

print("Median height of other players:", np.median(other_heights))