Lesson 4 Body Mass Index Calculator

Worksheet

K-W-L Chart

What I Know	What I Wonder	What I Learnt

New Commands: make a list of all the new Python commands you learn throughout the lesson

BMI Healthy Weight (Adults)

BMI	Level	Meaning
Below 18.5	Underweight	Being underweight may lead to a weakened immune system and feeling tired.
18.5 – 24.9	Healthy Weight	You have a healthy weight for your height.
25.0 – 29.9	Overweight	You are heavier than is healthy for someone of your height. Try to lose weight by keeping a balanced diet and physical activity.
30.0 and Above	Obese	

Source: UK NHS, US CDC

Activity 1:

Calculate the BMI

Name	Height (m)	Weight (kg)	BMI	Weight Status
(*Your Name*)	1.91	107		
Alexander Ovechkin	1.55	48		
Angelina Jolie	1.69	54		
Arnold Schwarzenegger	1.88	113		
Benedict Cumberbatch	1.83	79		
Jackie Chan	1.70	65		
Jonah Hill	1.70	87		
Kobe Bryant	1.98	96		
Paige Bueckers	1.80	64		
Rami Malek	1.75	70		
Stephen A.Smith	1.85	70		
Serena Williams	1.75	70		
Yao Ming	2.29	141		
Zayn Malik	1.75	66		

Activity 1 Code: Use this program to fill out the chart above.

```
print("BMI Calculator")

height = float(input("Height:(metre) "))
weight = float(input("Weight:(kilogram) "))

BMI = weight / (height**2)
print(BMI)

if BMI >= 30.0:
    print("Obese")

if BMI >= 25.0 and BMI <= 29.9:
    print("Overweight")

if BMI >= 18.5 and BMI <= 24.9:
    print("Healthy Weight")

if BMI < 18.5:
    print("Underweight")
```

Activity 2:

Draw a flow chart demonstrating how the program works. Use these shapes that follow a standard convention.

Symbol	Name	Function
	Start/end	An oval represents a start or end point
	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectangle represents a process
	Decision	A diamond indicates a decision

Task 1: Comment the code. Briefly explain the function.

Task 2: Investigate the conditions of the statements. Why does the program use the '≥' and '≤' operators to define the lowest and/or highest values of a range?

Task 3: Investigate the indentation. Remove the leading whitespace before each of the print statements. Does the program still work? Is the output correct?

Task 4: Zoe has a height of 1.70 metres and weighs 72 kilograms. Calculate Zoe's BMI and output her weight status. Could the program decide weight status? Why? Hint: Use the **round()** function.

Activity 3:

Use the article below *About Child & Teen BMI* available from

https://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

to make a new calculator for teenagers.

Extension:

1. Add another selection construct that can further divide the BMI calculation according to information gathered on gender.
2. Add some health advice responses in the BMI Calculator project, so that the user can know their weight status and some simple suggestions on health management.

What are the health benefits of losing weight? (UK NHS, 2018)

https://www.nhs.uk/common-health-questions/lifestyle/what-are-the-health-benefits-of-losing-weight

3. Do the Black, Asian, and other minority ethnic groups have different standards of BMI health weight? Investigate this issue and figure out how to make the BMI Calculator more inclusive.

References:

The BMI Calculator created by the UK's NHS: https://www.nhs.uk/live-well/healthy-weight/bmi-calculator

The BMI Calculator created by the US's CDC:

For children and teenagers: https://www.cdc.gov/healthyweight/bmi/calculator.html

For adults:

https://www.cdc.gov/healthyweight/assessing/bmi/adult_BMI/english_bmi_calculator/bmi_calculator.html