**📊Summary Report: Health Risk Assessment Report**

**🔹 Objective**

The notebook builds a **health risk prediction model** using lifestyle factors (Sleep, Steps, Calories) to predict **BMI** with a simple **PyTorch regression model**.

**🔹 Dataset**

A **dummy dataset** was created with 15 samples containing:

* **Sleep\_Hours**: Daily sleep duration.
* **Daily\_Steps**: Number of steps walked daily.
* **Calories\_Intake**: Daily calorie consumption.
* **BMI**: Target variable (Body Mass Index).

📑 Example rows:

| **Sleep\_Hours** | **Daily\_Steps** | **Calories\_Intake** | **BMI** |
| --- | --- | --- | --- |
| 6 | 5000 | 2000 | 24 |
| 7 | 7000 | 2200 | 23 |
| 8 | 8000 | 2100 | 22 |
| 5 | 3500 | 2500 | 26 |

**🔹 Model & Training**

* **Framework**: PyTorch
* **Model**: Linear Regression (nn.Linear(3,1))
* **Optimizer**: SGD (lr=0.01)
* **Loss**: MSELoss
* **Epochs**: 500

📉 **Training Loss** decreased over time:

* Epoch 100 → **0.6037**
* Epoch 200 → **0.5876**
* Epoch 500 → **0.5863**

**🔹 Results**

* **Mean Squared Error (MSE):** 1.5792
* **R² Score:** 0.4137 (moderate fit, suggests model explains ~41% of BMI variance)

✅ The model can predict BMI reasonably but needs more data for higher accuracy.

**🔹 Prediction Example**

Input:

* Sleep\_Hours = 7
* Daily\_Steps = 7000
* Calories\_Intake = 2200

Output → **Predicted BMI: 23.81**

**🔹 Key Insights**

1. **Sleep, activity, and diet** directly influence BMI.
2. The **model captured trends**, but limited data restricted accuracy.
3. More diverse and larger datasets would improve generalization.
4. Could extend to **multi-factor health risk assessment** (e.g., heart risk, diabetes risk).

**🔹 Output:-**

**A screenshot of a calories intake chart

AI-generated content may be incorrect.**

**A screenshot of a computer program

AI-generated content may be incorrect.**

A computer screen shot of a computer code

AI-generated content may be incorrect.