**Approach to Classify Participants**

**1. Define Key Metrics for Classification**

We can analyze CGM data based on these metrics:  
**Mean Blood Glucose (MBG):** Average glucose level over time.  
**Glucose Variability (Standard Deviation & Coefficient of Variation, CV%):** How much glucose fluctuates.  
**Time in Range (TIR):** % of time spent in the **70–140 mg/dL** range.  
**Time Above Range (TAR):** % of time above **140 mg/dL** (higher in prediabetics).  
**Time Below Range (TBR):** % of time below **70 mg/dL** (if frequent, could indicate another issue).  
**Post-Meal Response:** How quickly glucose returns to baseline after a spike.

**2. AI-READI Healthy group Classification Based on Trends**

| **Category** | **Mean Glucose (mg/dL)** | **Glucose Variability (SD & CV%)** | **Time in Range (70-140 mg/dL)** | **Time Above Range (>140 mg/dL)** | **Time Below Range (<70 mg/dL)** | **Count** |
| --- | --- | --- | --- | --- | --- | --- |
| **True Healthy** | 80-120 | Low (<15% -<20%) | >90% | <5% | <5% |  |
| **Prediabetic** | 100-140 | Moderate (15-25%) | 70-85% | 10-30% | <5% |  |
| **Diabetic (Type 2)** | 120-200+ | High (>25%) | <70% | >30% | Varies |  |

**3. Analysis of Metrics**

**Example**: pid 1057

| **Metric** | **Observed Value** | **Healthy Range** | **Prediabetic Range** |
| --- | --- | --- | --- |
| **Mean Blood Glucose (MBG)** | 96.15 mg/dL | 80-120 mg/dL | 100-140 mg/dL |
| **Glucose Variability (SD)** | 15.84 mg/dL | <15 mg/dL (ideal), <20 mg/dL (acceptable) | 15-25 mg/dL |
| **Coefficient of Variation (CV%)** | 16.48% | <18% | 15-25% |
| **Time in Range (70-140 mg/dL)** | 95.14% | >90% | 70-85% |
| **Time Above Range (>140 mg/dL)** | 1.59% | <5% | 10-30% |
| **Time Below Range (<70 mg/dL)** | 3.27% | <5% | <5% |

**Inference**: Participant 1057 falls into the **Healthy** Category