**Attributes Description**

**General Information**

1. **school**: Student's school
   * Binary: 'GP' - Gabriel Pereira, 'MS' - Mousinho da Silveira
2. **sex**: Student's sex
   * Binary: 'F' - Female, 'M' - Male
3. **age**: Student's age
   * Numeric: Ranges from 15 to 22 years

**Family and Personal Background**

1. **address**: Home address type
   * Binary: 'U' - Urban, 'R' - Rural
2. **famsize**: Family size
   * Binary: 'LE3' - Less or equal to 3, 'GT3' - Greater than 3
3. **Pstatus**: Parent's cohabitation status
   * Binary: 'T' - Living together, 'A' - Apart
4. **Medu**: Mother's education level
   * Numeric:
     + 0: None
     + 1: Primary education (4th grade)
     + 2: 5th to 9th grade
     + 3: Secondary education
     + 4: Higher education
5. **Fedu**: Father's education level
   * Numeric (same scale as Medu)
6. **Mjob**: Mother's job
   * Nominal: 'teacher', 'health', 'services' (e.g., administrative or police), 'at\_home', 'other'
7. **Fjob**: Father's job
   * Nominal (same options as Mjob)
8. **reason**: Reason for choosing the school
   * Nominal: 'home' (close to home), 'reputation' (school reputation), 'course' (course preference), 'other'
9. **guardian**: Student's guardian
   * Nominal: 'mother', 'father', 'other'

**Education-Related Features**

1. **traveltime**: Home to school travel time
   * Numeric:
     + 1: <15 minutes
     + 2: 15–30 minutes
     + 3: 30 minutes–1 hour
     + 4: >1 hour
2. **studytime**: Weekly study time
   * Numeric:
     + 1: <2 hours
     + 2: 2–5 hours
     + 3: 5–10 hours
     + 4: >10 hours
3. **failures**: Number of past class failures
   * Numeric:
     + n if 1 ≤ n < 3
     + 4 otherwise

**Support and Activities**

1. **schoolsup**: Extra educational support
   * Binary: 'yes', 'no'
2. **famsup**: Family educational support
   * Binary: 'yes', 'no'
3. **paid**: Extra paid classes within the course subject
   * Binary: 'yes', 'no'
4. **activities**: Participation in extra-curricular activities
   * Binary: 'yes', 'no'
5. **nursery**: Attended nursery school
   * Binary: 'yes', 'no'
6. **higher**: Aspiration for higher education
   * Binary: 'yes', 'no'
7. **internet**: Internet access at home
   * Binary: 'yes', 'no'
8. **romantic**: In a romantic relationship
   * Binary: 'yes', 'no'

**Behavior and Well-being**

1. **famrel**: Quality of family relationships
   * Numeric: 1 (very bad) to 5 (excellent)
2. **freetime**: Free time after school
   * Numeric: 1 (very low) to 5 (very high)
3. **goout**: Going out with friends
   * Numeric: 1 (very low) to 5 (very high)
4. **Dalc**: Workday alcohol consumption
   * Numeric: 1 (very low) to 5 (very high)
5. **Walc**: Weekend alcohol consumption
   * Numeric: 1 (very low) to 5 (very high)
6. **health**: Current health status
   * Numeric: 1 (very bad) to 5 (very good)
7. **absences**: Number of school absences
   * Numeric: Ranges from 0 to 93

**Grades**

1. **G1**: First period grade
   * Numeric: 0–20
2. **G2**: Second period grade
   * Numeric: 0–20
3. **G3**: Final grade (target variable)
   * Numeric: 0–20