

Dataset Description (MIDMARKS.csv)

- **Columns:**
 - S.NO → Serial number of student
 - SECTION → Class section (ALPHA, BETA, GAMMA, DELTA, SIGMA, OMEGA, EPSILON, ZETA, etc.)
 - DV, M-II, PP, BEEE, FL, FIMS → Marks in different subjects
(Data initially read as strings, then converted to integers)
- **Schema after cleaning:**
 - S.NO : string
 - SECTION : string
 - DV : integer
 - M-II : integer
 - PP : integer
 - BEEE : integer
 - FL : integer
 - FIMS : integer
- **Sections distribution after cleaning:**
 - ALPHA – 60 students
 - BETA – 60
 - GAMMA – 60
 - DELTA – 60
 - SIGMA – 60
 - OMEGA – 60
 - EPSILON – 60
 - ZETA – 60

(Errors like GAMA/SGMA/null were cleaned to proper section names.)

🔍 Observations from Executed Cells

1. **Data Cleaning:**
 - Some entries like "A" or null in marks were replaced with 0.
 - Section name typos (GAMA, SGMA) corrected.
2. **Marks Trends:**
 - Students have marks **out of 20 per subject**.
 - Some students scored **0** in subjects like M-II or PP.
 - Maximum achievers score consistently **18–20** in most subjects.
3. **Grades Column Added:**
 - A derived **Grade/Performance category** was created.
 - Likely based on average/total marks.

Plots Observed

From the notebook, visualizations include:

- **Bar plots & histograms** for marks distribution per subject.
- **Section-wise average marks comparison.**
- **Grade distribution (pie/bar chart).**

Plot Observations:

- **Strong Subjects:** FL, BEEE (many students score ≥ 15).
 - **Weak Subjects:** M-II, PP (more students with low marks & zeros).
 - **Section-wise:** Performance is almost balanced, but some sections have slightly more failures in M-II.
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Recommendations Based on Grades

Arrange remedial classes for less grade students based on the plots F students.

1. **If Grades are Low (Failing/Below Average):**
 - **Conduct remedial classes** for weak subjects (M-II, PP).
 - Provide **extra practice sessions** and **mentorship** for students repeatedly scoring < 10 .
2. **If Grades are Average (15–18):**
 - Students show potential but need **improvement programs**.
 - Suggest **weekly assignments & continuous evaluation**.
3. **If Grades are High (18–20):**
 - Encourage them with **advanced problem-solving tasks**.
 - Assign **peer mentoring roles** (help weaker classmates).

Conclusion

The **MIDMARKS.csv** dataset gives clear insights into students' midterm performance across multiple sections and subjects. After cleaning errors (`null`, "A", typos in section names), the analysis showed:

- **Strong performance** in subjects like **FL** and **BEEE**, where most students consistently scored above average.
- **Weak areas** in **M-II** and **PP**, where several students scored very low, including zeros.
- **Section-wise performance** is generally balanced, though some sections had slightly more low scorers in technical subjects.
- **Grade distribution** indicates three groups:

- **High scorers (≥ 18 marks)** – consistent performers who can be encouraged to mentor peers.
- **Average scorers (15–18 marks)** – require focused improvement plans.
- **Low scorers (< 15 marks)** – need **remedial classes and special academic support**.

Final Note :

Targeted interventions like **remedial sessions for weak students, improvement programs for average performers, and mentorship opportunities for top scorers** will help uplift overall academic performance while balancing section-wise results.