**Using Arrays to Create a Class Roster**

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When creating a report for a class roster for a college course we would need multiple, parallel arrays to print the report. We will assume the course has 100 students and their final grade is calculated from scores in the categories homework, labs, quizzes and exams. We will assume the scores are calculated earlier in the program and that each is weighted equally. Letter grades are assigned as expected based on the average of the four categories previously mentioned.

The parallel arrays and necessary variables would be declared and populated as follows:

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| --- |
| num sub num SIZE = 100 num RANGE = 5 num studentNum[SIZE] = 1, 2, etc string name[SIZE] = "last, first", etc... num homework[SIZE] = average from homework num labs[SIZE] = average from labs num quizzes[SIZE] = average from quizzes num exams[SIZE] = average from exams num finalAverage[SIZE] = average from categories string FINAL\_GRADE[RANGE] = "A", "B", etc... num SCORE[RANGE] = 90, 80, 70, 60, 0 string letterGrade |

Once the finalAverage for each student is calculated, we can determine SCORE and FINAL\_GRADE. The code would be:

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| --- |
| sub = RANGE - 1 while finalAverage < SCORE[sub]  sub = sub - 1 endwhile letterGrade = FINAL\_GRADE[sub] |

Finally, we can produce the roster. After the column headings are printed the code to print each row for each student would be:

|  |
| --- |
| sub = 0 while studentNum - 1 < SIZE  output name[sub], homework[sub], labs[sub], quizzes[sub], exams[sub], finalAverage[sub], letterGrade[sub]  sub = sub + 1  studentNum = studentNum + 1 endwhile |

The final roster would have six columns and show all of the students’ averages and final grades.