

Reason For Test Case	Input Values	Expected Output	Observed Output
-Valid Students data.	Last1,First1 1234 M 100 100 100 Last2,First2 2235 M 89 80 80 Last3,First3 4236 M 70 79 74 Last4,First4 5237 F 60 69 65 Last5,First5 6238 F 9 59 50 Last6,First6 7239 F 50 60 91	Last1,First1 1234 M 100.00 100.00 100.00 100 A Last2,First2 2235 M 89.00 80.00 80.00 83 B Last3,First3 4236 M 70.00 79.00 74.00 75 C Last4,First4 5237 F 60.00 69.00 65.00 65 D Last5,First5 6238 F 9.00 59.00 50.00 40 F Last6,First6 7239 F 50.00 60.00 91.00 67 D  Grade Destitution Bar Chart A **** B **** C **** D ***** F ****  >> Female: 50.00% >> Male: 50.00%  >> The top exam performance for this semester is: 100.00% >> The top avg of exams is for student with ID 1234 & avg was 100%	
-one invalid	Last,First 1234 C 50 50 50	Last,First 1234 C 50.00 50.00 50.00 ~~ Invalid data ~~  No Valid students data in file to evaluate grade distribution chart, male and female percentage and top exam and avg performace.	
-all invalid	Last1,First1 1234 C 0 0 0 Last2,First2 1235 M 500 5 15	Last1,First1 1234 C 0.00 0.00 0.00 ~~ Invalid data ~~ Last2,First2 1235 M 500.00 5.00 15.00 ~~ Invalid data ~~  No Valid students data in file to evaluate grade distribution chart, male and female percentage and top exam and avg performance.	
-one valid record	Last,First 1234 M 50 60 70	Last,First 1234 M 50.00 60.00 70.00 60 D  Grade Destitution Bar Chart A  B  C  D **** F   >> Female: 0.00% >> Male: 100.00%  >> The top exam performance for this semester is: 70.00% >> The top avg of exams is for student with ID 1234 & avg was 60%	

-valid with invalid data -all valid data situations: exams that are on the low and high edge of the grade (this includes zeros, A grade edges, B grade edges, C grade edges, D grade edges, F grade edges, and 100) - all invalid data situations: - invalid low id, high id. - invalid low exam (negative), high exam. -invalid gender - invalid exam1,exam2,exam3 - invalid all - no gender in input	Last1,First1 1234 M 65 66 67 Last2,First2 5678 M 0 0 0 Last3,First3 9012 M 75 77 79 Last4,First4 3456 M 99 95 92 Last5,First5 7890 F 77 0 100 Last6,First6 4321 M 50 60 70 Last7,First7 123 M 16 100 15 Last8,First8 1212 N 12 90 89 Last10,First10 1313 M -1 59 48 Last11,First11 1414 F 97 101 66 Last12,First12 -1 T 234 567 890 Last13,First13 9876 70 70 71	Last1,First1 1234 M 65.00 66.00 67.00 66 D Last2,First2 5678 M 0.00 0.00 0.00 0 F Last3,First3 9012 M 75.00 77.00 79.00 77 C Last4,First4 3456 M 99.00 95.00 92.00 96 A Last5,First5 7890 F 77.00 0.00 100.00 59 F Last6,First6 4321 M 50.00 60.00 70.00 60 D Last7,First7 123 M 16.00 100.00 15.00 ~~ Invalid data ~~ Last8,First8 1212 N 12.00 90.00 89.00 ~~ Invalid data ~~ Last10,First10 1313 M -1.00 59.00 48.00 ~~ Invalid data ~~ Last11,First11 1414 F 97.00 101.00 66.00 ~~ Invalid data ~~ Last12,First12 -1 T 234.00 567.00 890.00 ~~ Invalid data ~~ Last13,First13 9876 7 0.00 70.00 71.00 ~~ Invalid data ~~  Grade Destitution Bar Chart A **** B  C **** D ***** F *****  >> Female: 16.67% >> Male: 83.33%  >> The top exam performance for this semester is: 100.00% >> The top avg of exams is for student with ID 3456 & avg was 96%
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