3PIO – Abdulrahman Zaiter

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| Name: | Purpose: | Input: | Pre: | Output: | Post: | Notes: |
| filesCheck | Checks if either input or output files exists. | none | Declaration of both input and output streams before calling this function. | bool | return true if files are loaded successfully, false if not | none |
| setPrecision | Changes quantity of numbers after decimal point. | data | outFile is opened & ok, data has valid value. | outFile | Changes the quantity of numbers after decimal point to the given data in call. | none |
| printHeading | Print heading for output file. | none | outFile is opened & ok. | outFile | Heading is printed in outFile. | none |
| readRd | Reads exams data from input file. | inFile | inFile is opened & ok. studName, studId, sex, exam1, exam2, exam3 have values. | studName, studId, exam1, exam2, exam3 | studName, studId, sex, exam1, exam2, exam3 are stored to their variables via inFile. | none |
| validData | Checks if exam and student id are valid. | studId, sex, exam1, exam2, exam3. | studId, sex, exam1, exam2, exam3 have values | bool | Returns True if data are valid, false is not. | none |
| printRd | Print intial row of student and exams data. | studName, studId, sex, exam1, exam2, exam3. | outFile is opened & ok. studName, studId, sex, exam1, exam2, exam3 have values. | outFile | Student name, id, sex, exam 1, exam 2, exam3 are printed in outFile. | none |
| avg | Calculates avg of 3 exams converted to the next integer. | exam1, exam2, exam3. | exam1, exam2, exam3 are valid and have data. | float | The avg of 3 exams converted to the next integer is returned. | none |
| printAvgAndGrade | Prints student avg and letter grade data. | examAvg, studGrade. | outFile is opened & ok. examAvg, studGrade are valid and have data. | outFile | Avg and grade letter are printed to outFile. | none |
| grade | Returns the exams avg to letter grading. | examAvg | examAvg is valid and have data. | char | Letter of grading is returned, grades are: A,B,C,D,F. | none |
| printInvalidDataMsg | Prints invalid data line. | none | outFile is opened & ok. | outFile | "~~ Invalid data ~~" line is printed in outFile. | none |
| countGrades | Depending on the input, grade count is increased by one. | studGrade | studGrade has value and valid grade, cnt A,B,C,D,F has values. | cntA, cntB, cntC, cntD, cntF. | Count of one of the grades cnt variables is ancreased by one, depending on the input. | none |
| assignTopExam | Assigning top exam value "if possible" to the examTop Variable. | exam1, exam2, exam3. | exam1, exam2,exam3 has values, examTop is declared and has value. | examTop | either exam1 or exam2 or exam3 is assigned to examtop if one or more of them is larger than examTop. | none |
| assignTopAvg | Assigning top avg value "if possible" to the examAvgTop Variable in parallel with examAvgTopId. | studId, examAvg | studId examAvg has values, examAvgTop and examAvgTopId are declared and has value. | examAvgTop, examAvgTopId. | examAvgTop is assigned as examAvg and examAvgTopId as studId Only if examAvg > examAvgTop. | none |
| maleAndFemalePrec | Assigning males and females percentages according to their count. | studCnt, maleCnt, femaleCnt | studCnt, maleCnt, femaleCnt have values, malePerc and femalePerc are declared and has values | malePerc, femalePerc | malePerc and femalePerc are assigned to their variables | maleCnt, femaleCnt are both passed as float in order to get accurate float results in percentages. |
| printBarChart | Prints Grade Destitution Bar Chart | studCnt, cntA, cntB, cntC, cntD, cntF. | outFile is opened & ok. studCnt, cntA, cntB, cntC, cntD, cntF have values. | outFile. | grade destitution bar chart is printed to outFile | none |
| printPrec | Prints males and females percentages | malePerc, femalePerc | outFile is opened & ok. malePerc, femalePerc have values | outFile | males and females percentages are printed to outFile | none |
| printBets | Prints top exam performance and top avg with its student id | examTop, examAvgTop | outFile is opened & ok. examTop, examAvgTop have values | outFile | top exam performance and top avg with its student id are printed to outFile | none |
| printNoValidDataForTopAndPerc | Prints an error message if there is no valid exam records | none | outFile is opened & ok | outFile | the meaning of "No valid student data in file to evaluate chart, percentages and top exam and avg" is printed to outFile. | none |