**bool filesCheck(ofstream& outFile, ifstream& inFile);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Checks if either input or output files exists.**

**// Input: none.**

**// Pre: Declaration of both input and output streams before calling this function.**

**// Output: bool.**

**// Post: return true if files are loaded successfully, false if not.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void setPrecision(ofstream& outFile, int data);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Changes quantity of numbers after decimal point.**

**// Input: data.**

**// Pre: outFile is opened & ok, data has valid value.**

**// Output: outFile.**

**// Post: Changes the quantity of numbers after decimal point to the given data in call.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void printHeading(ofstream& outFile);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Print heading for output file.**

**// Input: none.**

**// Pre: outFile is opened & ok.**

**// Output: outFile.**

**// Post: Heading is printed in outFile.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void readRd(ifstream& inFile, string& studName, int& studId, char& sex, float& exam1, float& exam2, float& exam3);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Reads exams data from input file.**

**// Input: inFile.**

**// Pre: inFile is opened & ok. studName, studId, sex, exam1, exam2, exam3 have values.**

**// Output: studName, studId, exam1, exam2, exam3.**

**// Post: studName, studId, sex, exam1, exam2, exam3 are stored to their variables via inFile.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**bool validData(int studId, char sex, float exam1, float exam2, float exam3);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Checks if exam and student id are valid.**

**// Input: studId, sex, exam1, exam2, exam3.**

**// Pre: studId, sex, exam1, exam2, exam3 have values.**

**// Output: bool.**

**// Post: Returns True if data are valid, false is not.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void printRd(ofstream& outFile, string studName, int studId, char sex, float exam1, float exam2, float exam3);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Print intial row of student and exams data.**

**// Input: studName, studId, sex, exam1, exam2, exam3.**

**// Pre: outFile is opened & ok. studName, studId, sex, exam1, exam2, exam3 have values.**

**// Output: outFile.**

**// Post: Student name, id, sex, exam 1, exam 2, exam3 are printed in outFile.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**float avg(float exam1, float exam2, float exam3);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Calculates avg of 3 exams converted to the next integer.**

**// Input: exam1, exam2, exam3.**

**// Pre: exam1, exam2, exam3 are valid and have data.**

**// Output: float.**

**// Post: The avg of 3 exams converted to the next integer is returned.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void printAvgAndGrade(ofstream& outFile, int examAvg, char studGrade);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Prints student avg and letter grade data.**

**// Input: examAvg, studGrade.**

**// Pre: outFile is opened & ok. examAvg, studGrade are valid and have data.**

**// Output: outFile.**

**// Post: Avg and grade letter are printed to outFile.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**char grade(int examAvg);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Returns the exams avg to letter grading.**

**// Input: examAvg.**

**// Pre: examAvg is valid and have data.**

**// Output: char.**

**// Post: Letter of grading is returned, grades are: A,B,C,D,F.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void printInvalidDataMsg(ofstream& outFile);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Prints invalid data line.**

**// Input: none.**

**// Pre: outFile is opened & ok.**

**// Output: outFile.**

**// Post: "~~ Invalid data ~~" line is printed in outFile.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void countGrades(char studGrade, int& cntA, int& cntB, int& cntC, int& cntD, int& cntF);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Depending on the input, grade count is increased by one.**

**// Input: studGrade.**

**// Pre: studGrade has value and valid grade, cnt A,B,C,D,F has values.**

**// Output: cntA, cntB, cntC, cntD, cntF.**

**// Post: Count of one of the grades cnt variables is ancreased by one, depending on the input.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void assignTopExam(float exam1, float exam2, float exam3, float& examTop);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Assigning top exam value "if possible" to the examTop Variable.**

**// Input: exam1, exam2, exam3.**

**// Pre: exam1, exam2,exam3 has values, examTop is declared and has value.**

**// Output: examTop.**

**// Post: either exam1 or exam2 or exam3 is assigned to examtop if one or more of them is larger than examTop.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void assignTopAvg(int studId, float examAvg, float& examAvgTop, int& examAvgTopId);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Assigning top avg value "if possible" to the examAvgTop Variable in parallel with examAvgTopId.**

**// Input: studId, examAvg.**

**// Pre: studId examAvg has values, examAvgTop and examAvgTopId are declared and has value.**

**// Output: examAvgTop, examAvgTopId.**

**// Post: examAvgTop is assigned as examAvg and examAvgTopId as studId Only if examAvg > examAvgTop.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void maleAndFemalePrec(float studCnt, float maleCnt, float femaleCnt, float& malePerc, float& femalePerc);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Assigning males and females percentages according to their count.**

**// Input: studCnt, maleCnt, femaleCnt.**

**// Pre: studCnt, maleCnt, femaleCnt have values, malePerc and femalePerc are declared and has values.**

**// Output: malePerc, femalePerc.**

**// Post: malePerc and femalePerc are assigned to their variables.**

**// Note: maleCnt, femaleCnt are both passed as float in order to get accurate float results in percentages.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void printBarChart(ofstream& outFile, int studCnt, int cntA, int cntB, int cntC, int cntD, int cntF);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Prints Grade Destitution Bar Chart.**

**// Input: studCnt, cntA, cntB, cntC, cntD, cntF.**

**// Pre: outFile is opened & ok. studCnt, cntA, cntB, cntC, cntD, cntF have values.**

**// Output: outFile.**

**// Post: grade destitution bar chart is printed to outFile.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void printPrec(ofstream& outFile, float malePerc, float femalePerc);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Prints males and females percentages.**

**// Input: malePerc, femalePerc.**

**// Pre: outFile is opened & ok. malePerc, femalePerc have values.**

**// Output: outFile.**

**// Post: males and females percentages are printed to outFile.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void printBets(ofstream& outFile, float examTop, float examAvgTop, int examAvgTopId);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Prints top exam performance and top avg with its student id.**

**// Input: examTop, examAvgTop.**

**// Pre: outFile is opened & ok. examTop, examAvgTop have values.**

**// Output: outFile.**

**// Post: top exam performance and top avg with its student id are printed to outFile.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**void printNoValidDataForTopAndPerc(ofstream& outFile);**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**// Purpose: Prints an error message if there is no valid exam records.**

**// Input: none.**

**// Pre: outFile is opened & ok.**

**// Output: outFile.**

**// Post: the meaning of "No valid student data in file to evaluate chart, percentages and top exam and avg" is printed to outFile.**

**// Note: none.**

**//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***