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

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

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

**// Input: inFile, outFile.**

**// 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, Student& studData);**

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

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

**// Input: inFile.**

**// Pre: inFile is opened & ok. Student struct is defined properly.**

**// Output: studData.**

**// Post: variables of studData struct are stored to their variables via inFile.**

**// Note: none.**

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

**bool validData(Student studData);**

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

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

**// Input: studData.**

**// Pre: Student struct is defined properly and its variables have valid values.**

**// Output: bool.**

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

**// Note: none.**

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

**void printRd(ofstream& outFile, Student studData);**

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

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

**// Input: studData.**

**// Pre: outFile is opened & ok. Student struct is defined properly and its variables have valid values.**

**// Output: outFile.**

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

**// Note: none.**

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

**int avg(Student studData);**

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

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

**// Input: studData.**

**// Pre: Student struct is defined properly and its variables have valid values.**

**// Output: int.**

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

**// Note: none.**

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

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

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

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

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

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

**// Output: outFile.**

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

**// Note: none.**

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

**Grades grade(int examAvg);**

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

**// Purpose: Returns the exams avg to Grades datatype.**

**// Input: examAvg.**

**// Pre: examAvg is valid and have data, datatype Grades is valid.**

**// Output: Grades.**

**// Post: Returns enum value of Grades that matches exams Avg.**

**// 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(Grades studGrade, int& cntExcellent, int& cntGood, int& cntOk, int& cntWeak, int& cntFailing);**

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

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

**// Input: studGrade.**

**// Pre: studGrade has value and valid grade, cntcntExcellent, cntGood, cntOk,**

**// cntWeak, cntFailing has valid values. datatype Grades is valid**

**// Output: cntExcellent, cntGood, cntOk, cntWeak, cntFailing.**

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

**// Note: none.**

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

**void printBarChart(ofstream& outFile, int studCnt, int cntExcellent, int cntGood, int cntOk, int cntWeak, int cntFailing);**

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

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

**// Input: studCnt, cntExcellent, cntGood, cntOk, cntWeak, cntFailing.**

**// Pre: outFile is opened & ok. studCnt, cntExcellent, cntGood, cntOk, cntWeak, cntFailing have values.**

**// Output: outFile.**

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

**// Note: none.**

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

**void printNoValidData(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, no bar chart and mean of all avg printed" is printed to outFile.**

**// Note: none.**

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

**void printMeanOfAllAvg(ofstream& outFile, int examAvgSum, int studCnt);**

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

**// Purpose: Prints the mean of all avg's.**

**// Input: examAvgSum, studCnt.**

**// Pre: outFile is opened & ok, examAvgSum, studCnt have values.**

**// Output: outFile.**

**// Post: the mean of all exams AVG's is printed to outFile.**

**// Note: none.**

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

**void printValidInvalidPerc(ofstream& outFile, int invalidCnt, int studCnt);**

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

**// Purpose: Prints valid and invalid records percentage.**

**// Input: invalidCnt, studCnt.**

**// Pre: outFile is opened & ok, invalidCnt, studCnt have values.**

**// Output: outFile.**

**// Post: the percentage of valid and invalid records are printed in outFile.**

**// 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 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.**

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