

Problem 1 -Write a program Submit a program called: FinalGrade.java

Create a grade calculator for this class that says whether the final grade is A, B, C, D or F once you enter all grades. Do not include things such as bonus points or extra points on the final grade. ****Hint: You may find it helpful to look up information on my posted syllabus (the weights of HWs, tests and other contributions to your final grade).***

You should use the methods we created in class:

```
int [] enterInput(String message, int size)
double getAvg(int [] a)
double getWeightedGrade(int percent, double avg)
```

Create yourself:

```
void letterGrade(double g)
```

This method takes in a number (your final grade) and prints out the letter value associated with it. It does not return anything.

Sample run:

```
***CSE 1310 grade calculator!***
```

Please enter test grades:

Enter grade 1:

99

Enter grade 2:

78

Enter grade 3:

89

Please enter HW grades:

Enter grade 1:

100

Enter grade 2:

98

Enter grade 3:

78

Enter grade 4:

45

Enter grade 5:

100

Enter grade 6:

89

Enter grade 7:

92

Enter grade 8:

91

Please enter quiz grades:

Enter grade 1:

89

Enter grade 2:

77

Enter grade 3:

100

Enter grade 4:

100

Enter grade 5:

57

Please enter final exam grade:

Enter grade 1:

78

Total grade is: 84.14

You made a B!

Problem 2-Write methods Submit a program called directMethods.java

1. Create a method called `leapYear()` that takes an integer (a year) and returns `true` if the year is leap year and `false` if it is not. For example, a line of code like `System.out.println(leapYear(2020));` in the main method should output `true` to screen.
2. Create a method called `threeNums()` that takes a String parameter of three integers, separated by a dash -. The method should return `true` if they are in increasing order (from left to right) and `false` otherwise. For example, a line of code like `System.out.println(threeNums("10-20-40"));` in the main method should output `true` to screen.
3. Create a method called `printOut()` that takes an integer parameter, a char and a String and prints out a box using the given char. The top and bottom part of the box should have as many chars as the integer parameter given and the sides of the box should be half of the integer parameter given. The String given should be printed in the middle of the box. For example, a line of code like `printOut(10, '*', "Hello");` in the main method should output to screen the box given below. If the String given is longer than the integer given or the integer given is not an even number, "Can't print this :(" should be output to screen.

```
*****
*           *
*           *
*  Hello   *
*           *
*           *
*****
```

4. Create a main method using these methods. Your main method should only contain three lines:
`System.out.println(leapYear(2020));`
`System.out.println(threeNums("10-20-40"));`
`printOut(10, '*', "Hello");`

Problem 3-Write a Program Submit a program called: `Dates.java`

Talib wants to create a program that allows users to enter today's date (or any other date) in either decimal or binary. The input should be in the form MM/DD or MM-DD and be followed by a b (for binary) or a d (for decimal). The program should then convert the date from the base entered into the other base. For example, if they enter the date in decimal, the program should return the date in binary (see the following sample run).

The program should continue until quit is entered. It should also let the user know if they entered the wrong format (see the following sample run).

You should use the methods we created in class:

```
String DecToBinary(int userInput)
String buildNum(int num)
int BinaryToDec(int userInput)
int valueToAdd(char c, int exp)
```

Create yourself:

Feel free to create any methods that help you: a method to determine which base the user entered, a method to do the actual date conversion etc.

Sample Run:

***Enter today's date, month followed by day: (b=binary d=decimal)

08/06

Wrong format. Enter again.

***Enter today's date, month followed by day: (b=binary d=decimal)

08/06 d

Date in binary: 1000/110

***Enter today's date, month followed by day: (b=binary d=decimal)

09-15

Wrong format. Enter again.

***Enter today's date, month followed by day: (b=binary d=decimal)

09-15 d

Date in binary: 1001/1111

***Enter today's date, month followed by day: (b=binary d=decimal)

1000/110 b

Date in decimal: 08/06

***Enter today's date, month followed by day: (b=binary d=decimal)

quit

Bye :)

Problem 4-Give answers [Submit a file called: Answers.doc](#)

Convert the following binary numbers to decimal, hexadecimal and quaternary (SHOW YOUR WORK):

1000100_2

10111111_2

1000001_2

1001011_2

Convert the following hexadecimal numbers to decimal, binary and octal (SHOW YOUR WORK):

$1348F_{16}$

$AB711_{16}$

$457D_{16}$

87779_{16}

Convert the following decimal numbers to binary, hexadecimal and senary (SHOW YOUR WORK):

78_{10}

980_{10}

1003_{10}

What is the maximum value that can be held in the following situations? NOTE: give the maximum value in decimal and SHOW YOUR WORK

___ (hexadecimal, duodecimal, tridecimal)

____ (septenary, nonary, vigesimal)

A byte, in a world where a bit allowed for four unique digits (instead of two)

Two bytes, in a world where a bit allowed for six unique digits (instead of two)