Assessment: Lab Exercise 07

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Lab Section Number: 321

Due Date: November 20, 2020

# Algorithm (Pseudocode and flowchart)

***Pseudocode***

Program.java

Import scanner

Declare string variables (course, grade, report)

Declare Boolean variable (validInput = false)

Create scanner

While loop

Get user input for course name

Get user input for letter grade

Set letter grade to uppercase

If statement to check if userInput = A-F

Create parameterized constructor

Call createReport method

Print results returned from method

Print name

Set validInput to true (exit loop)

Else if

Print this is not an option and restart loop

GradingSystem.java

Declare courseName and letterGrade strings

Non-arg constructor

Arg constructor

Getter for courseName

Setter for courseName

Getter for letterGrade

Setter for letterGrade

createReport method

declare report string

if and else if statements for each letter (A-F)

give specific value to report for each individual letter

return report

***Flowchart***

Start

Declare string variables course, grade, report, validInput(Boolean)

While loop

Prompt user

Set input as course name

Prompt user

Set input as letter grade

If grade = A-F

Call createReport method

Print results returned from method

Print name

Else if input != A-F

Grade invalid, restart while loop

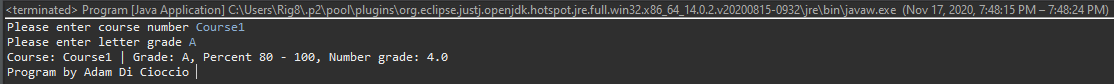
End of while loop

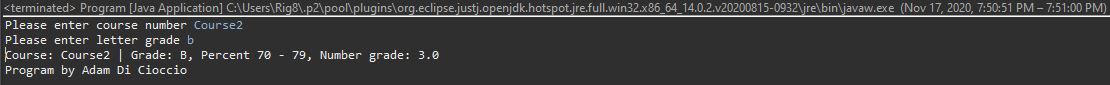
Stop

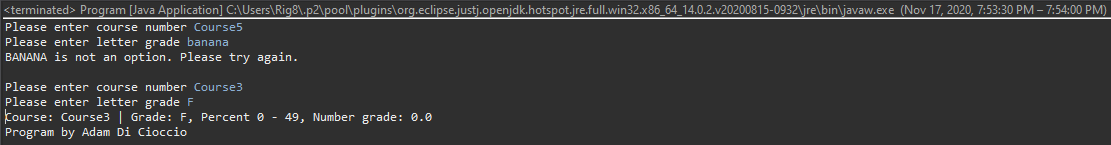
# Test plan

|  |  |  |  |
| --- | --- | --- | --- |
| External input | Expected output | Actual output | Description |
| “Course1”  A | Course: Course1 | Grade: A, Percent 80 - 100, Number grade: 4.0 | Course: Course1 | Grade: A, Percent 80 - 100, Number grade: 4.0 | Grade input correct, output results |
| “Course2”  b | Course: Course1 | Grade: B, Percent 70 - 79, Number grade: 3.0 | Course: Course1 | Grade: B, Percent 70 - 79, Number grade: 3.0 | Grade input correct, output results |
| “Course3”  F | Course: Course1 | Grade: F, Percent 0 - 49, Number grade: 0.0 | Course: Course1 | Grade: F, Percent 0 - 49, Number grade: 0.0 | Grade input correct, output results |
| “Course4”  h | h is not an option. Please try again. | h is not an option. Please try again. | Grade input “h” is not valid, restart loop |
| “Course5”  banana | banana is not an option. Please try again. | banana is not an option. Please try again. | Grade input “banana” is not valid, restart loop |

# Java screen shots







# Source Code for Program

//Adam Di Cioccio

//Lab Exercise 07

//CST8116-321

import java.util.Scanner;

public class Program {

public static void main(String[] args) {

//declare variables

GradingSystem gradingSystem = null;

String course = null;

String grade = null;

String report = null;

boolean validInput = false;

//create scanner

Scanner input = new Scanner(System.in);

//while loop to check if user inputs correct grade (A-F)

while (!validInput) {

//gather user input

System.out.print("Please enter course number ");

course = input.nextLine();

System.out.print("Please enter letter grade ");

grade = input.nextLine();

//set grade to upper case

grade = grade.toUpperCase();

//if grade is equal to A-F then perform logic

if (grade.equals("A") || grade.equals("B") || grade.equals("C") || grade.equals("D") || grade.equals("E") || grade.equals("F")) {

//create parameterized constructor

gradingSystem = new GradingSystem(course, grade);

//call createReport method in GradingSystem

report = gradingSystem.createReport();

//print the results

System.out.println(report);

//print full name

System.out.println("Program by Adam Di Cioccio \n");

//exit loop

validInput = true;

//if user did not input correct grade

} else

//tell user it isn't option and restart loop

System.out.println(grade + " is not an option. Please try again. \n");

}

}

}

//Adam Di Cioccio

//Lab Exercise 07

//CST8116-321

public class GradingSystem {

private String courseName;

private String letterGrade;

public GradingSystem() {

}

public GradingSystem(String courseName, String letterGrade) {

setCourseName(courseName);

setLetterGrade(letterGrade);

}

public String getCourseName() {

return courseName;

}

public void setCourseName(String courseName) {

this.courseName = courseName;

}

public String getLetterGrade() {

return letterGrade;

}

public void setLetterGrade(String letterGrade) {

this.letterGrade = letterGrade;

}

public String createReport() {

String report = null;

if (letterGrade.equals("A")) {

//do A stuff

report = "Course: " + courseName + " | Grade: " + letterGrade + ", Percent 80 - 100, Number grade: 4.0";

} else if (letterGrade.equals("B")) {

//do B stuff

report = "Course: " + courseName + " | Grade: " + letterGrade + ", Percent 70 - 79, Number grade: 3.0";

} else if (letterGrade.equals("C")) {

//do C stuff

report = "Course: " + courseName + " | Grade: " + letterGrade + ", Percent 60 - 69, Number grade: 2.0";

} else if (letterGrade.equals("D")) {

//do D stuff

report = "Course: " + courseName + " | Grade: " + letterGrade + ", Percent 50 - 59, Number grade: 1.0";

} else if (letterGrade.equals("F")) {

//do E stuff

report = "Course: " + courseName + " | Grade: " + letterGrade + ", Percent 0 - 49, Number grade: 0.0";

}

//return result

return report;

}

}