

Final Grade Calculator Project

The instructor teaches a class that has two main parts, projects, and exams, each worth 50% of the final grade. The final grade for the class is calculated in three stages:

1. **The Projects grade**, add up the grades of all projects, divide by the number of projects, then multiply by .5 $(Sum()/Count() * .5)$
2. **The Exams grade**, add up all the grades of exams, divide by the number of exams, then multiply by .5 $(Sum()/Count() * .5)$
3. **Final grade**, add the two grades together $(SUM(Projects\ and\ Exams))$
4. **Letter grade**, using the Final grade, students should see their letter grade. *(IFS)*

Grade	Letter grade
Greater or equal to 90	A
Greater or equal to 80	B
Greater or equal to 70	C
Greater or equal to 55	D
Less than 55	F

However, the instructor would like to test three scenarios in his class and how they impact the final grades.

Scenario 1, all projects and exams count toward the final grade.

Scenario 2, drop the grades of the lowest two projects and the lowest exam.

Scenario 3, offers 5 bonus points; in addition to dropping the grades of the lowest two projects and the lowest exam. Also, if a student got a perfect score of 105, a “**Congratulation!!**” message should appear next to the grade

This project has three parts:

Part 1: Calculate the final grade that student will have at the end of the class.

Part 2: Calculate the final grade AFTER dropping the grades of the lowest two projects and lowest exam.

Part 3: In addition to dropping the lowest two projects and one of the exams, we need to check the grade to display a “**Congratulation!!**”.

Solution,

Open the Final Grade Calculator project workbook. We will solve this project in three parts.

Part 1, Calculate the final grade that student will have at the end of the class.

Part 1	Grade without dropping projects, exam, and no bonus points		
	Projects		Worth 50% of the final grade
	Exams		Worth 50% of the final grade
	Final grade		The two parts are added to each other
	Letter Grade		

To calculate the final grade, we need to calculate the grade for projects, exams, add the two grades, then find the letter grade.

Grade for Projects,

Find the total of all projects (SUM) and the number of projects (COUNT). Then we will divide the total by the number of projects (SUM/COUNT) and multiply by .5

1. Use the SUM function to find the total for all the projects =SUM(B2:B14).
2. Use the COUNT function to count how many project there are =COUNT(B2:B14)
3. Finally, the formula for the grade of projects is =SUM(B2:B14)/COUNT(B2:B14)*0.5
4. Type that formula in E2.

Grade for Exams,

Find the total of all exam (SUM) and the number of exams (COUNT). Then we will divide the total by the number of exams (SUM/COUNT) and multiply by .5

1. Use the SUM function to find the total for all the projects =SUM(B16:B19).
2. Use the COUNT function to count how many project there are =COUNT(B16:B19)
3. Finally, the formula for the grade of projects is =SUM(B16:B19)/COUNT(B16:B19)*0.5
4. Type that formula in E3.

Final Grade,

Find the total of the previous two grades. In E4, type =SUM(E2:E3).

Final Letter Grade,

Using the grade in E4, we will use IFS function to check what is the final letter grade. In E5, type =IFS(E4>=90,"A",E4>=80,"B",E4>=70,"C",E4>=55,"D",E4<55,"F")

Part 2, Calculate the final grade AFTER dropping the grades of the lowest two projects and lowest exam.

Part 2	Grade after dropping lowest two projects and the lowest exam but no bonus points		
	Projects		Worth 50% of the final grade
	Exams		Worth 50% of the final grade
	Final grade		The two parts are added to each other
	Letter Grade		

In this part, we need to drop the grades of the lowest two projects and the lowest exam.

Grade for Projects,

Find the total of all projects (SUM) minus the grade of the lowest two projects (SMALL) and the number of projects (COUNT) minus 2 because we have two less projects. Then we will divide the total by the number of projects (SUM(SMALL())/COUNT-2) and multiply by .5

1. Use the SUM function to find the total for all the projects =SUM(B2:B14).
2. The total of the lowest two projects can be calculated using this formula
SUM(SMALL(B2:B14,{1,2}))
3. Use the COUNT function to count how many project there are =COUNT(B2:B14)-2
4. Finally, the formula for the grade of projects is =(((SUM(B2:B14)-SUM(SMALL(B2:B14,{1,2}))))/(COUNT(B2:B14)-2))*0.5
5. Review the formula carefully and type it in cell in E9.

Grade for Exams,

Find the total of all exams (SUM) minus the grade of the lowest exam (SMALL) and the number of exams (COUNT) minus 1 because we have one less exam. Then we will divide the total by the number of exams (SUM(SMALL())/COUNT-1) and multiply by .5

1. Use the SUM function to find the total for all the projects =SUM(B2:B14).
2. The total of the lowest exam grades can be calculated using this formula
SMALL(B16:B19,{1})
3. Use the COUNT function to count how many project there are = COUNT(B16:B19)-1
4. Finally, the formula for the grade of projects is =(SUM(B16:B19)-SMALL(B16:B19,{1}))/((COUNT(B16:B19)-1)*0.5
5. Review the formula carefully and type it in cell in E10.

Final Grade,

Find the total of the previous two grades. In E11, type = SUM(E9:E10).

Final Letter Grade,

Using the grade in E4, we will use IFS function to check what is the final letter grade. In E12, type =IFS(E11>=90,"A",E11>=80,"B",E11>=70,"C",E11=55,"D",E11<55,"F")

Part 3, In addition to dropping the lowest two projects and one of the exams, we need to check the grade to display a “**Congratulation!!**”.

Part 3	Grade after dropping lowest two projects and the lowest exam and adding bonus points		
	Projects		Worth 50% of the final grade
	Exams		Worth 50% of the final grade
	Bonus		The two parts are added to each other
	Final grade		
	Letter Grade		

Repeat the previous steps for the grade for projects and exams.

Bonus points.

In cell E18, type this formula SUM(B21:B23)

Message.

In cell F20, type this formula IF(E19=105,"Congratulation!!","")