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#include <iostream>
#include <string>

int main()
{
    float DCF, DS, OOP, EEE, WAD;
    int f = 0;
    int g = 0;
    std::string grace;
    float graceMarks = 0;

    // Input and validation for DCF
    std::cout << "Enter DCF Marks : ";
    std::cin >> DCF;
    if (DCF < 0 || DCF > 100)
    {
        std::cout << "Invalid value for DCF\n";
        return 0;
    }
    else if (DCF < 33 && DCF >= 30)
    {
        g++;
        graceMarks = 33 - DCF; // going to apply grace marks
        grace = "DCF";
    }
    else if (DCF < 30)
    {
        f++;
    }

    // Input and validation for DS
    std::cout << "Enter DS Marks : ";
    std::cin >> DS;
    if (DS < 0 || DS > 100)
    {
        std::cout << "Invalid value for DS\n";
        return 0;
    }
    else if (DS < 33 && DS >= 30)
    {
        g++;
        graceMarks = 33 - DS; // Apply grace marks
        grace = "DS";
    }
    else if (DS < 30)
    {
        f++;
    }

    // Input and validation for OOP
    std::cout << "Enter OOP Marks : ";
    std::cin >> OOP;
    if (OOP < 0 || OOP > 100)
    {
        std::cout << "Invalid value for OOP\n";
        return 0;
    }
    else if (OOP < 33 && OOP >= 30)
    {
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    g++;
    graceMarks = 33 - OOP; // Apply grace marks
    grace = "OOP";
}
else if (OOP < 30)
{
    f++;
}

// Input and validation for EEE
std::cout << "Enter EEE Marks : ";
std::cin >> EEE;
if (EEE < 0 || EEE > 100)
{
    std::cout << "Invalid value for EEE\n";
    return 0;
}
else if (EEE < 33 && EEE >= 30)
{
    g++;
    graceMarks = 33 - EEE; // Apply grace marks
    grace = "EEE";
}
else if (EEE < 30)
{
    f++;
}

// Input and validation for WAD
std::cout << "Enter WAD Marks : ";
std::cin >> WAD;
if (WAD < 0 || WAD > 100)
{
    std::cout << "Invalid value for WAD\n";
    return 0;
}
else if (WAD < 33 && WAD >= 30)
{
    g++;
    graceMarks = 33 - WAD; // Apply grace marks
    grace = "WAD";
}
else if (WAD < 30)
{
    f++;
}

// Determine overall result
if (f == 0 && g == 0)
{
    float totalM = DCF + DS + OOP + EEE + WAD;
    float percentage = (totalM / 500) * 100;

    std::cout << "Result: Passed\n";
    std::cout << "Percentage: " << percentage << "%\n";

    if (percentage >= 60)
    {
        std::cout << "Division: First Division\n";
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        }
        else if (percentage >= 45)
        {
            std::cout << "Division: Second Division\n";
        }
        else if (percentage >= 33)
        {
            std::cout << "Division: Third Division\n";
        }
    }
    else
    {
        if (g == 1 && f == 0)
        {
            std::cout << "Passed in grace marks " << graceMarks << ", Grace Subject
is " << grace << std::endl;
        }
        else if (f == 1 && g == 0)
        {
            std::cout << "Result : Supplementary\n";
        }
        else
        {
            std::cout << "Result : fail\n";
        }
    }

    return 0;
}
```