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1  #For Loops Challenge 15:  Grade Point Average Calculator App
2
3  print("Welcome to the Grade Point Average Calculator App")
4
5  #Get user input
6  name = input("What is your name: ").title().strip()
7  grade_num = int(input("How many grades would you like to enter: "))
8
9  #Get the user's grades
10 grades = []
11 for i in range(grade_num):
12     grades.append(int(input("Enter grade: ")))
13
14 #Sort the grades and print them to the screen
15 grades.sort(reverse=True)
16 print("\nGrades Highest to Lowest:")
17 for grade in grades:
18     print("\t" + str(grade))
19
20 #Calculate the average
21 average = sum(grades)/len(grades)
22 average = round(average, 2)
23
24 #Print a grade summary
25 print("\n" + name + "'s Grade Summary:")
26 print("\tTotal Number of Grades: " + str(len(grades)))
27 print("\tHighest Grade: " + str(max(grades)))
28 print("\tLowest Grade: " + str(min(grades)))
29 print("\tAverage: " + str(average))
30
31 #Get the user's desired average and calculate what they need to get on the next
    assignment
32 desired_avg = float(input("\nWhat is your desired average: "))
33 grade_req = desired_avg*(len(grades)+1) - sum(grades)
34 grade_req = round(grade_req, 2)
35
36 #Print a summary
37 print("\nGood luck " + name + "!")
38 print("You will need to get a " + str(grade_req) + " on your next assignment to
    earn a " + str(desired_avg) + " average.")
39
40 #Make a copy of the original grades and swap out one of the grades
41 new_grades = grades[:]
42 print("\nLets see what you average could have been if you did better/worse on an
    assignment.")
43 grade_change = int(input("What grade would you like to change: "))
44 new_grades.remove(grade_change)
45 new_grade = int(input("What grade would you like to change " + str(grade_change)
    + " to: "))
46 new_grades.append(new_grade)
47
48 #Sort the new grades and print them to the screen
49 new_grades.sort(reverse=True)
50 print("\nNew Grades Highest to Lowest:")
51 for grade in new_grades:
52     print("\t" + str(grade))
53
54 #Calculate the new average
55 new_average = sum(new_grades)/len(new_grades)
56 new_average = round(new_average, 2)
57
58 #Print a new grade summary
59 print("\n" + name + "'s New Grade Summary:")
60 print("\tTotal Number of Grades: " + str(len(new_grades)))

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61 print("\tHighest Grade: " + str(max(new_grades)))
62 print("\tLowest Grade: " + str(min(new_grades)))
63 print("\tAverage: " + str(new_average))
64
65 #Print a summary on how the average changed
66 print("\nYour new average would be a " + str(new_average) + " compared to your
    real average of " + str(average) + "!")
67 average_change = new_average - average
68 average_change = round(average_change, 2)
69 print("That is a change of " + str(average_change) + " points!")
70
71 #Too bad the original grades are still intact!
72 print("\nToo bad your original grades are still the same!")
73 print(grades)
74 print("You should go ask for extra credit!")
```