Homework 5: Programming

Deadline: February 25th, 2025

1 Description

This programming assignment is to implement a modification of the MaxZondorCoin problem on the previous assignment. In this case you have

- coins of denominations $d_1, d_2, \ldots, d_n$
- a target value T
- where all denominations are distinct
- and you have 5 coins of each denomination

Write a Python program that determine the *maximum* number of coins that will add up to the target value T (exactly). Other programming languages need to be approved by the instructor.

2 Sample I/0

The input will be a text file, consisting of two lines, which is to be read from standard input. The the first line has integers T and n, where T is the target value and n is the number of coin denominations. The second line will contain n space separated integers $d_1, d_2, \ldots, d_n$.

The output should be a single integer, written to standard out, representing the maximum number of coins that can be used to add up to exactly T. If it is not possible, then the output should be -1.

```
input sample 1:
21 3
3 7 11

output:

3

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input sample 2:
```

```
104 3
3 7 11

output:
-1

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input sample 3:

1000 5
101 107 121 189 213

output:
8
```

3 Testing Protocol

We will test your program by running your program at the command line. You will need to use **standard input**. Do not pass in the name of the file as an argument - do not encode the name of your input file in your program. We will run your program on several different test files, some of which may be generated by other programs and piped into yours.

4 Submission

Submit only a single source file to Canvas.