



Department of Computer Engineering
University of Peradeniya

CO222: Programming Methodology

Project I

Marks: 10% of the final grade

Deadline: strictly on or before **4pm, 02-April-2014**. Late submissions are not accepted.

Marking scheme: 8/10 marks for correct programming and functionality
2/10 marks for clarity, style and comments

Plagiarism policy: Zero marks will be awarded for submissions that DO NOT COMPILE. Copied submissions will receive zero marks. Your program must be entirely your own works. DO NOT COPY FROM OTHERS and DO NOT ALLOW ANYONE TO SEE YOUR CODE.

Specification:

Your task in this assignment is to write a single C program which does the scoring for a little known game of **fiveDice**. **fiveDice** is played by rolling five 9-sided dice. The dice have the integers 1 to 9 on their faces.

Your program will be given one and only one line of input. This line of input will specify a **fiveDice** dice roll. In other words the line of input should contain 5 integers between 1 and 9 inclusive.

Your output should describe the best **fiveDice** possible score for the input dice roll. There is one and only one correct output line for every input line.

The score for a **fiveDice** dice roll is calculated using the following rules:

Pre-Condition	Score Formula	Example	Example Score	Description
Any throw	Sum of dices faces	9 3 4 3 6	25	sum
2+ dice showing the same face	$14 + 2 * \text{face}$	1 3 4 3 6	20	pair of 3's
3+ dice showing the same face	$15 + 3 * \text{face}$	7 9 9 4 9	42	three 9's
4+ dice showing the same face	$16 + 4 * \text{face}$	1 1 8 1 1	20	four 1's
5 dice showing the same face	$17 + 5 * \text{face}$	6 6 6 6 6	47	five 6's
2+ dice showing the same face and 2+ other dice showing the same face	$13 + 2 * \text{face1} + 2 * \text{face2}$	3 3 5 4 5	29	pair of 3's and a pair of 5's
3 dice showing the same face and 2 other dice showing the same face	$15 + 3 * \text{face1} + 2 * \text{face2}$	8 1 8 1 8	41	three 8's and a pair of 1's
4 sequential dice faces	$25 + \text{highest face in sequence}$	3 1 1 4 2	29	short sequence 1..4
5 sequential dice faces	$37 + \text{highest face in sequence}$	6 3 4 7 5	44	long sequence 3..7

In **fiveDice** game the highest scoring rule that can be applied is chosen.

Occasionally multiple rules will produce the same score. In this case the rule with the ALPHABETICALLY FIRST DESCRIPTION is used. Therefore, there is always a unique correct output for any input line.

If your program is named **fiveDice**, it should behave **EXACTLY** as below:

```
$/fiveDice
8 8 8 8 8
fiveDice score is 57: five 8's.
```

```
$/fiveDice
5 6 4 8 3
fiveDice score is 31: short sequence 3..6.
```

```
$/fiveDice
5 7 3 1 9
fiveDice score is 25: sum.
```

You may assume you are given exactly one line of input. Most testing will be on legal input lines but your program may be tested on invalid input. Your program will only be tested with a single line of input.

Remember your program is going to be **automatically** marked; so be careful to produce **EXACTLY** the desired output.

You **SHOULD** submit a single C file with the following filename: **fiveDiceE11xxx.c**, where xxx is your registration number. File with any other filename will NOT be considered for marking.



GOOD LUCK. ENJOY THE CODING!!!