**CSE-1211: Fundamentals of Programming Lab**

**Instructions:**

* *Mobile, Pen drive and any types of electrical devices is prohibited to keep aside.*
* *Any kind of printed materials except while papers is prohibited to keep aside.*
* *Staying on the allocated seat is must. In case, there is any technical issues, ask the responsible instructors for any changes of seat.*
* *You must log in google classroom to get and submit the assignment. Any other means will not be allowed in general.*
* *Talking, helping others and any types of idea sharing will be considered as an illegal activities in evaluation time.*
* *Marks are distributed as: 60% for case passing, 20% for code correction and 20% for code structure.*

**--------------------------------------------------- A --------------------------------------------------**

In this problem, you are given two integers x and k. You need to find whether the k-th digit from the right of the integer x is odd or not.

**Input**

A line consisting of two integers x and y. x is a 32-bit signed integer and 1<= k <= 9.

**Output**

Print the mentioned digit as well as whether it is odd or even. See the sample I/O for clarification.

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 1011 1 | 1 ODD |
| 3453412 4 | 3 ODD |
| 89234283 3 | 2 EVEN |

**--------------------------------------------------- B --------------------------------------------------**

You will be given two coordinates of a point on the Cartesian coordinate system. Your task is to find out the quadrant of the point.

**Input:**

Two valid integers indicating x and y coordinate respectively.

**Output:**

Output will be one of the following depending on the coordinate value:

* Quadrant - 1
* Quadrant - 2
* Quadrant - 3
* Quadrant - 4
* Origin
* Axis - X
* Axis - Y

See the sample I/O for clarification.

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 2 -1 | Quadrant - 4 |
| 0 0 | Origin |
| 10 0 | Axis - X |

**--------------------------------------------------- C --------------------------------------------------**

You will be given four 32-bit signed integers. Your task is to find the median of them.

**Input:**

Four integers a, b, c and d.

**Output:**

Print the median up to 3 decimal points. See the sample I/O for clarification.

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 3 7 5 2 | 4.000 |
| 1 9 5 2 | 3.500 |

**--------------------------------------------------- D --------------------------------------------------**

Suppose your friend Boltu is a job holder whose monthly salary is divided into three sections: basic, house rent and medical allowance. Each year he asks for your help to calculate his tax. So, this year you have decided to write a C/C++ code for him so that he does not need others' help hereafter. Note that the income tax of an individual is calculated from the following criteria:

* Basic monthly payment is entirely taxable income.
* House rent up to 50% of basic payment will not be added to taxable income.
* Medical allowance up to 60,000 yearly is free of tax.

And tax calculation rules on annual taxable income are:

|  |  |
| --- | --- |
| Annual Taxable Income | Tax Rate |
| First 2,00,000 Taka | 0% |
| Next 1,00,000 Taka | 10% |
| Next 5,00,000 Taka | 15% |
| Next 10,00,000 Taka | 20% |
| Next 30,00,000 Taka | 25% |
| Rest of the taxable income | 30% |

**Input:**

You will be given three positive integers indicating monthly basic, house rent and medical allowance. All calculations can be done using a double precision 64-bit data-type.

**Output:**

Calculate annual taxable income and estimated tax and print the result up to two decimal places. See the sample I/O for clarification.

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 25000  18000  6000 | Annual Taxable Income: 378000.00  Annual Tax: 21700.00 |
| 30000  25000  12000 | Annual Taxable Income: 564000.00  Annual Tax: 49600.00 |

**--------------------------------------------------- E --------------------------------------------------**

In this problem, you will be given an integer x. You need to spell the integer x in English. You need to consider singular and plural numbers with care.

**Input**

A line consisting of an integer x. 1 <= x <= 9999.

**Output**

Print the english spelling of the integer. See the sample I/O for clarification.

|  |  |
| --- | --- |
| **Sample Input** | **Sample Output** |
| 123 | one hundred  twenty three |
| 11 | eleven |
| 9910 | nine thousands  nine hundreds  ten |