# Practice Problem Set 2

1. Write a program that asks the user to enter an integer and checks whether it is divisible by 3 or 5.

Examples

|  |  |
| --- | --- |
| Input | Input |
| 15 | 3 |
| Output | Output |
| Divisible by 3 and 5 | Divisible by 3 |

|  |  |
| --- | --- |
| Input | Input |
| 10 | 17 |
| Output | Output |
| Divisible by 5 | Not divisible by 3 or 5 |

1. Following is the income tax percentage a person has to give according to his salary range:

|  |  |
| --- | --- |
| Salary Range | Tax percentage of income |
| Below 30,000 | 4% |
| 30,000-70,000 | 10% |
| Above 70,000 | 15% |

Write a program that asks the user to input his salary and prints the amount of income tax he has to give.  
Examples

|  |
| --- |
| Input |
| 45000 |
| Output |
| 4500 |

Hints:  
Income Tax = Salary \* Tax percentage of income

1. When stocks are sold or purchased through a broker, the broker’s commission is often computed using a sliding scale that depends upon the value of stocks traded. Let’s say that a broker charges the amounts shown in the following table:

|  |  |
| --- | --- |
| Transaction Size | Commission rate |
| Under $2,500 | $30 + 1.7% |
| $2,500 - $6,250 | $56 + 0.66% |
| $6,250 - $20,000 | $76 + 0.34% |
| $20,000 - $50,000 | $100 + 0.22% |
| $50,000 - $500,000 | $155 + 0.11% |
| Over $500,000 | $255 + 0.09% |

The minimum charge is $39.   
Write a program that asks the user to enter the amount of trade, then displays the amount of commission.

Examples

|  |  |
| --- | --- |
| Input | Input |
| 30,000 | 125 |
| Output | Output |
| $166.00 | $39.00 |

1. The following table shows the postal code of different areas of Bangladesh.

|  |  |
| --- | --- |
| Post Code | Area |
| 1206 | Dhaka Cantonment |
| 1209 | Jigatala |
| 1213 | Banani |
| 1212 | Badda |
| 1236 | Dhania |
| 1332 | Narisha |
| 1310 | Keraniganj |
| 1211 | Lalbag |
| 1216 | Mirpur |

Write a program that asks the user to enter a postal code and if the value of postal code is in the table then print the corresponding area.

Examples

|  |  |
| --- | --- |
| Input | Input |
| 1332 | 1250 |
| Output | Output |
| Narisha | Could not find |

1. Write a program that calculates how many digits the number has. Assume, that the number will contain at most 5 digits.

Examples

|  |  |
| --- | --- |
| Input | Input |
| 1332 | 125 |
| Output | Output |
| Number of digits = 4 | Number of digits = 3 |

Hints:   
For a 1 digit number: min number = 0 and max number = 9  
For a 2 digit number: min number = 10 and max number = 99

1. Write a program that asks the user for a 24-hour time format and converts it into a 12-hour time format.

Examples

|  |  |  |
| --- | --- | --- |
| Input | Input | Input |
| 21 12 | 24 00 | 12 00 |
| Output | Output | Output |
| 9:12 | 0:00 | 12 00 |

1. Write a program that asks the user to enter two dates in (day-month-year) format and then indicates which one is earlier.

Examples

|  |
| --- |
| Input |
| 3 6 08 5 6 07 |
| Output |
| 5/6/07 is earlier than 3/6/08 |

1. Write a program that finds the largest and smallest of four integers.

Examples

|  |
| --- |
| Input |
| 10 20 30 40 |
| Output |
| Largest = 40  Smallest = 10 |

1. Here is a simplified version of Beaufort scale, which is used to estimate wind force:

|  |  |
| --- | --- |
| Speed(Knots) | Description |
| < 1 | Calm |
| 1 - 3 | Light air |
| 4 - 27 | Breeze |
| 28 - 47 | Gale |
| 48 - 63 | Storm |
| > 63 | Hurricane |

Write a program that asks the user to enter a wind speed (in knots), then displays the corresponding description.

Examples

|  |
| --- |
| Input |
| 28 |
| Output |
| Gale |

1. In Problem Set 1.1, you came across a problem where you had to find check digit for a given Universal Product Code (UPC) from the first 11 digits.

Now your task is to write a program that checks if a UPC is valid or not.

Hints:   
For finding the check digit from first 11 digits please see - Modern C: Computing a UPC Check Digit Chapter 4 (Page56)

After finding the check digit from the first 11 digits compare it with the 12th digit of the UPC.

Examples

|  |
| --- |
| Input |
| 0 1 3 8 0 0 1 5 1 7 3 5 |
| Output |
| Valid |

|  |
| --- |
| Input |
| 0 5 1 5 0 0 2 4 1 2 8 2 |
| Output |
| Not Valid |