Week - 2 (Conditional, Repetition, and String manipulation)

1. Given one positive integer **n**. Find the factorial of that positive integer. (Note: 0! = 1)

Input: always positive

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| --- | --- |
| Input | Output |
| 5 | 120 |
| 0 | 1 |
| 2 | 2 |
| 7 | 5040 |
| 1 | 1 |
| 6 | 720 |
| 10 | 3628800 |
| 15 | 2004310016 |

1. Given the positive integer **n** and check **n** is prime number or not.

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| --- | --- |
| Input | Output |
| 2 | Prime |
| 5 | Prime |
| 12 | Not Prime |
| 25 | Not Prime |
| 47 | Prime |
| 13849384 | Not Prime |
| 104729 | Prime |

1. Given the positive integer **n**, sum all numbers from **1** to **n** (inclusive), and print the result. (You can use loop, but if you can do it without using loop, you are the best)

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| --- | --- |
| Input | Output |
| 10 | 55 |
| 5 | 15 |
| 25 | 325 |
| 100 | 5050 |
| 200 | 20100 |
| 1000 | 500500 |
| 0 | 0 |

1. You are given one String and one Integer. You need to print out every string at index that can be divisible by given int. (Note: index starts from 0, divider > 0)

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| --- | --- |
| Input | Output |
| Tutorism is Everywhere  3 | TosiErhe |
| VueJS is da best  4 | VS b |
| i love python programming  3 | io tnrrmg |
| to good at coding, you code  5 | to nod |
| you suck, we suck, everyone sucks  7 | ykues |
| easy peasy lemon squeezy  1 | easy peasy lemon squeezy |

1. Write a program to print the text inside-out (reverse the text from the middle to both ends). For example, giving the text "elephant", the output is "peletnah". If the given text is "hello", the output should be "ehlol". (Note: input is only one word)

|  |  |
| --- | --- |
| Input | Output |
| elephant | peletnah |
| hello | ehlol |
| programming | rgorpagnimm |
| pyapongay | paypoyagn |
| wholovesjava | volohwavajse |
| pythonista | ohtypatsin |
| bananapapaya | ananabayapap |

1. You are given two strings str1, and str2. If the shorter string appears in the longer string, please remove the shorter string that appear in the longer string.

(Note: CASE SENSITIVE, str1 and str2 will not has the equals length)

(Hint: use indexOf(String str) method from String class)

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| --- | --- |
| Input | Output |
| boypluzplustutorplus  plus | boypluztutor |
| plu  boypluzplustutorplus | boyzstutors |
| teerapat  sea | teerapat |
| pyapongaygayblahgaygy  gay | pyaponblahgy |
| idontwanttocreatetestcases  t | idonwanocreaeescases |
| lolhellololholahalol  lol | heholaha |

1. Receive 2 string as input. Write program to check that two string is match or not.
2. If two string is all character is same (CASE SENSITIVE) print "Perfect Match"
3. If two string is all character is same but case is not same print "Partial Match"
4. If one string is substring of another string print "Partial Match" (CASE INSENSITIVE)
5. Otherwise print "Not Match"

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| --- | --- |
| Input | Output |
| abcd ABCD | Partial Match |
| CSCMS CSCMS | Perfect Match |
| ABCD FGHI | Not Match |
| ilovepython LOVE | Partial Match |
| lolisnotgood LOLIS | Partial Match |
| practicemakesbetter MADE | Not Match |

1. You are given a string of binary numbers. Write a program to convert given binary string to decimal number.

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| Input | Output |
| 10 | 2 |
| 111 | 7 |
| 00110010 | 50 |
| 1101101 | 109 |
| 11001111 | 207 |
| 1001001 | 73 |

1. You are given a decimal number. Write a program to convert it into octal number (base 8).

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| --- | --- |
| Input | Output |
| 9 | 11 |
| 15 | 17 |
| 35 | 43 |
| 20 | 24 |
| 50 | 62 |
| 1000 | 1750 |
| 1009 | 1761 |

1. You are given one integer N that is the length for each side of cube. Output this cube by using '\*' for the border of cube and use '-' for the other part of cube.

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| --- | --- |
| Input | Output |
| 5 | ----\*\*\*\*\*  ---\*---\*\*  --\*---\*-\*  -\*---\*--\*  \*\*\*\*\*---\*  \*---\*--\*  \*---\*-\*  \*---\*\*  \*\*\*\*\* |
| 4 | ---\*\*\*\*  --\*--\*\*  -\*--\*-\*  \*\*\*\*--\*  \*--\*-\*  \*--\*\*  \*\*\*\* |
| 6 | -----\*\*\*\*\*\*  ----\*----\*\*  ---\*----\*-\*  --\*----\*--\*  -\*----\*---\*  \*\*\*\*\*\*----\*  \*----\*---\*  \*----\*--\*  \*----\*-\*  \*----\*\*  \*\*\*\*\*\* |
| 8 | -------\*\*\*\*\*\*\*\*  ------\*------\*\*  -----\*------\*-\*  ----\*------\*--\*  ---\*------\*---\*  --\*------\*----\*  -\*------\*-----\*  \*\*\*\*\*\*\*\*------\*  \*------\*-----\*  \*------\*----\*  \*------\*---\*  \*------\*--\*  \*------\*-\*  \*------\*\*  \*\*\*\*\*\*\*\* |

1. You are a lover of bacteria. You want to raise some bacteria in a box. Initially, the box is empty. Each morning, you can put any number of bacteria into the box. And each night, every bacterium in the box will split into two bacteria. You hope to see exactly X bacteria in the box at some moment. What is the minimum number of bacteria you need to put into the box across those days?

(Hint: For the first sample, we can add one bacterium in the box in the first day morning and at the third morning there will be 4 bacteria in the box. Now we put one more resulting 5 in the box. We added 2 bacteria in the process, so the answer is 2. For the second sample, we can put one in the first morning and in the 4-th morning there will be 8 in the box. So, the answer is 1.)

(Big Hint: Think about the number of zero or ones in binary representation of the given input number.)

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| --- | --- |
| Input | Output |
| 5 | 2 |
| 8 | 1 |
| 13 | 3 |
| 20 | 2 |
| 39 | 4 |
| 69 | 3 |
| 98 | 3 |
| 200 | 3 |
| 3 | 2 |