Homework 3

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# Homework problem 1

## Requirements

The program created for problem 1 computes and displays the value of five factorial and 10 factorial with labels.

## Design

One way to create this program is by declaring integers ‘a’ and ‘b’ and assigning it the values of five factorial and ten factorial, respectively. Then write a print line containing a statement of the desired calculation with the integers ‘a’ and ‘b’ replacing, with respect to their values, what a programmer could have just written in as the answer.

## Iterative developments steps

1. Create a new class in Eclipse.
2. Designate an integer a for the value of five factorial and an integer b for the value of ten factorial
3. Write a print line displaying the calculation and the result.

## Tests

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description of test | input | expected result | actual result | cause |
| method1 normal input | N/A | 5! = 120  10! = 362880 | 5! = 120  10! = 362880 | I am a boss |

# Homework problem 2

## Requirements

This question asks the programmer to make a program that displays a truth table.

## Design

Use multiple print statements to display the header, the booleans being compared, and the results of the comparison.

## Iterative developments steps

1. Create new class
2. Write a print line statement for the header (“p q p&&q”)
3. Write print line statements for the Booleans being compared (“false false”), (“false true”), (“true false”), (“true true”).
4. Between the string print lines, write print line statements for the results.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description of test | input | expected result | actual result | cause |
| method1 normal input | N/A | p q p&&q  false false false  false true false  true false false  true true true | p q p&&q  false false false  false true false  true false false  true true true | Good code |

# Homework problem 3

## Requirements

This program is designed to display the uppercase version of a given string

## Design

Declare int char and string variables. Create a ‘for’ loop that has a lower bound of 0, an upward bound of 5, and increasing at increments of 1. Convert the characters at each position to integer form. Create an if statement to find values in the bounds 97 and 122. In the case of a value falling in that range, being a lowercase value, subtract 32 from the integer value. Convert the integer value back into char form and display the character. Otherwise have it print out the original character

## Iterative developments steps

1. Declare integers a, b, i; character c; and string s; variables
2. Create for loop (i=0,; i<=5; i++). Set integer a to s.charAt(i).
3. Create if statement within the for loop for values of a between 97 and 122. If the value lies within the range, then subtract 32 from that number. Convert that resultant integer to character form and display
4. Create else statement displaying the original character, if the integer value of the character does not lie within the range.

**Tests**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description of test | input | expected result | actual result | Cause |
| method1 | N/A | A  B  3  C  D  $ | Numbers and some characters | Improper syntax |
| Method2 | N/A | A  B  3  C  D  $ | A  B  3  C  D  $ | Proper syntax |

# References

# Introduction to Programming Using Java by Anthony J. Dos Reis

# Lauren Ernst

# Joe Schmitt

# Marielle Billig