1. Write a program that prompts the user to enter an integer, determines the factorial of this number. \(5! = 1 \times 2 \times 3 \times 4 \times 5\)

2. Write an application that computes following calculation and prints result.

\[
\frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \ldots + \frac{98}{99} + \frac{99}{100}
\]

3. Write a program which will allow user to enter two float numbers, and then print out value of their difference divided by their product. Let the program allow entering pairs of numbers until one of the numbers entered is zero.

4. Modify the given code to produce the output shown in each part of the problem. Use proper indentation techniques. Make no changes other than inserting braces and changing the indentation of the code.

```java
if ( y == 8 )
if ( x == 5 )
System.out.println( "@@@@" );
else
System.out.println( "#####" );
System.out.println( "$$$$" );
System.out.println( "&&&&" );
```

a) Assuming that \(x = 5\) and \(y = 8\), the following output is produced:

```
@@@@
$$$$
&&&&
```

b) Assuming that \(x = 5\) and \(y = 8\), the following output is produced:

```
@@@@
```

c) Assuming that \(x = 5\) and \(y = 8\), the following output is produced:

```
@@@@
&&&&
```

d) Assuming that \(x = 5\) and \(y = 7\), the following output is produced.

```
#####
$$$$
&&&&
```

5. Write a program that reads 10 number of integers, determines how many positive and negative values have been read, and computes the total and average of the input values, not counting zero.

6. Write a program that calculates the product of the odd integers from 1 to 15.