Debugging

• *Debugging* is the process of identifying and removing errors that prevent correct operation of computer software or a system.

• PyCharm provides a full range of facilities for debugging your source code:
  • Breakpoints in Python.
  • Customizable breakpoint properties: conditions, pass count, etc.
  • Frames, variables, and watches views in the debugger UI.
  • Runtime evaluation of expressions.

General debugging steps:

1. Configure the debugger options.
2. Define a run/debug configuration.
3. Create breakpoints in the source code.
4. Launch a debugging session.
5. Pause or resume the debugging session as required.
6. During the debugger session, step through the breakpoints, evaluate expressions, change values on-the-fly, examine suspended program, explore frames, and set watches.
Starting the Debugger Session

- Set breakpoints in the source code.
- Open the desired Python script in the editor, or select it in the Project tool window.
- On the context menu, choose Debug <script name>: 
The Debug tool window becomes available when you start debugging.

It displays the output generated by the debugging session for your application.

Lab Exercise - 1

• Could you write a function that tells us that "120" is "5!"?

• **Hint:** The strategy is pretty straightforward, just divide the term by successively larger terms until you get to "1" as the result: *(use recursion)*

  120  \rightarrow  120/2  \rightarrow  60/3  \rightarrow  20/4  \rightarrow  5/5  \rightarrow  1  \Rightarrow  5!

• **python3.5 myExercise1.py 120,150**

  Output

  120 = 5!
  150 NONE

Use recursion
Lab Exercise - 2

- An anagram is a form of word play, where you take a word (or set of words) and form a different word (or different set of words) that use the same letters, just rearranged.
- **Hint:** All words must be valid spelling, and shuffling words around doesn't count.
- Write a function that takes an input and checks if two words in each line are anagrams.

```python
input.txt
Clint Eastwood ? Old West Action
parliament ? partial man

python3.5 myExercise2.py input.txt
```

**Output:**
Clint Eastwood is an anagram of Old West Action
parliament is NOT an anagram of partial man