https://hc.labnet.sfbu.edu/~henry/sfbu/course/image/pattern\_recog/slide/exercise\_pattern\_recog.html

Q1: Noise Reduction

1. Noise Reduction
   * Step 1: Study the [Pattern Recognition Process](https://hc.labnet.sfbu.edu/~henry/sfbu/course/image/pattern_recog/slide/topic_frame.html#proc)
   * Step 2: Study the [Pattern Recognition - implementing your code without using an image processing library](https://hc.labnet.sfbu.edu/~henry/sfbu/course/image/pattern_recog/slide/exercise_pattern_recog.html#pr)
   * Step 3: Study the [Concept of Blurring](https://hc.labnet.sfbu.edu/~henry/sfbu/course/image/tutorialspoint/slide/Concept%20of%20Blurring.html)
   * Step 4: Study the [Concept of Mask (Filters)](https://hc.labnet.sfbu.edu/~henry/sfbu/course/image/tutorialspoint/slide/Concept%20of%20Mask.html)
   * Step 3: Using a Gausian filter to remove several [salt and pepper noises](https://hc.labnet.sfbu.edu/~henry/sfbu/course/image/tutorialspoint/slide/Concept%20of%20Blurring.html).

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| --- |
| +------+-----+------+  | 1/16 | 1/8 | 1/16 |  +------+-----+------+  | 1/8 | 1/4 | 1/8 |  +------+-----+------+  | 1/16 | 1/8 | 1/16 |  +------+-----+------+    **[Gaussian Filter](https://stackoverflow.com/questions/20746172/blur-an-image-using-3x3-gaussian-kernel)** |

* + - Step 3.1: Asking ChatGPT to provide sample Java code
      * You can get a [hint](https://hc.labnet.sfbu.edu/~henry/sfbu/course/image/pattern_recog/slide/gaussian_hint.html) from ChatGPT
    - Step 3.2: Using the "Noise Image" and "Clean Image" shown on [Concept of Blurring](https://hc.labnet.sfbu.edu/~henry/sfbu/course/image/tutorialspoint/slide/Concept%20of%20Blurring.html) to tset your program