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## Analysis report

*The one where numbers needs to be sorted*

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## Introduction

This report shall be written by the student as he or she reflects on selected parts from the first two steps in [Polya's Problem Solving Technique](#). The report is intended to guide the student in devising a plan that will help the student solve the problem at hand.

The report shall be written in a formal way, void of any personal opinions. An easy to digest article about writing an academic report can be found [here](#). The student can choose to write the report in Swedish or English.

The student shall:

- Add the name of the task
- Add his or her name
- Remove any italic text in the template
- Rephrase the problem
- Reflect on difficult words
- Explain how the plan was devised

## **Step 1 - Understand the problem**

### **Rephrase the problem**

From the start we are given two text files. The text files contain lines with both odd and even numbers, if there is more than one number on the line they are separated with spaces. The program fetches the arguments from the command line and uses them as file paths for the two text files. The files will then be opened and read. The numbers in each file will then be saved into a list as integers. From the first list the odd numbers will be filtered and from the second list the even numbers will be filtered. Then the two lists will be added together and sorted with the reversed bubble sort method. Lastly the result will be shown on the screen.

### **Understanding the words**

The instructions were clear.

## Step 2 - Devising a plan

I chose to use pseudocode, so that I can later copy it onto the code editor and start coding from there.

Imports the (sys) system-specific parameters and functions library

The main function will only be executed if the file was run directly (not imported) + option to only run one specific function from the code.

The main function():

- fetches the input from the command line
- calls all the necessary functions:
  - read\_file()
- filter\_odd\_or\_even()
- appends the lists from even and odd numbers into a list
- reversed\_bubble\_sort()
- lastly prints the list with the result on the screen

def read\_file(filename):

- Reads the file and saves the numbers as integers in the file into a list,
- If the user inputs a file name that does not exist in the folder an error message will be shown.
- returns the list into the main function

def filter\_odd\_or\_even(numbers, odd):

Filters out the odd respectively even numbers from the list depending on the parameter odd

- if odd: # Filters out the odd numbers
- elif odd is False: # Filters out the even numbers
- returns the filtered list of odd respectively even numbers to the main function

def reversed\_bubble\_sort(numbers):

- Sorts the list of numbers with bubble sort in a decreasing order,
- returns the sorted list into the main function