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**Module :** SD1 (4COSC006C.2)

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**Data Structure and Design Document**

* Transaction Data Structure
  + Transactions are represented as dictionaries inside a list in the following manner.
    - Amount -Float data type
    - Category - String data type
    - Date – String data type
* Global Variable
  + transactions -> A global dictionary to store all the transactions
* File Handling Functions
  + **load\_transactions** – It reads transactions from JSON file and load them to the transactions dictionary.
  + **save\_transactions** – Saves the current state of the transactions dictionary into the JSON file.
  + **read\_bulk\_transactions\_from\_file** – Reads an external file and enter the file transactions into the transactions dictionary and represent from our Finance tracker program.
* CRUD operations
  + **Create -> add\_transactions()**
    - This function let user add transactions into the program.
  + **Read -> view\_transactions()**
    - This function let user to view the already added transactions.
  + **Update -> update\_transactions()**
    - This function let user to update the existing transactions.
  + **Delete -> delete\_transactions()**
    - This function let user to delete an existing transaction.
* Display Summary -> **display\_summary()**
  + This function gives a summary of the transactions done and keep a track of expenses for each one of criteria.
* Main Menu -> **main\_menu()**
  + This function gives user the ability to select the feature which he/she want to use in the Finance Tracker Program.
* Additional Functions which I created for better functionality, structure and readability
  + **validate\_amount()** -> This function validates the user’s input amount and check whether it’s acceptable by the program.
  + **validate\_category()** -> This function validates the user’s input category and check whether it’s acceptable by the program.
  + **validate\_date()** -> This function validates the user’s input date and check whether it’s in the correct date format.
  + **readbulk\_amount()** -> This function validates the file transaction’s amounts are acceptable by the program.
  + **readbulk\_category()** -> This function validates the file transaction’s categories are acceptable by the program.
  + **readbulk\_date()** -> This function validates the file transaction’s dates are in the correct date format.