Assignment 1 – Part 1 (20%)
Due: 1 November 2018 at 3pm

Learning Outcomes
1. Perform data visualization and exploration
2. Coding with Python and its libraries
3. Identify and fix logical and run-time errors in programs

Learning goals at programming level
- Function, pandas, control statement, data structure, e.g., list, dictionary

Dataset
- BreadBasket – transactions of a bakery
    a. Date: Categorical variable that tells us the date of the transactions (YYYY-MM-DD format). The column includes dates from 30/10/2016 to 09/04/2017.
    b. Time: Categorical variable that tells us the time of the transactions (HH:MM:SS format).
    c. Transaction: Quantitative variable that allows us to differentiate the transactions. The rows that share the same value in this field belong to the same transaction, that's why the data set has less transactions than observations.
    d. Item: Categorical variable with the products.

Tasks
This assignment focuses on data visualization and exploration. The given dataset is about transactions of a bakery. Students need to write Python programs to perform the following tasks.
1. Read the dataset into the program with the most appropriate data structure.
2. Perform statistical analysis of the dataset, such as show the total number of records, unique items etc.
3. Present the data of interests graphically, for example showing the most popular item(s) (e.g., coffee) for the entire period.

Writing:
1. Write down your name and student ID in the first cell of the notebook page.
2. Students need to write comments for their programs. For example, write down what they try to do (before running the code) and comment on the findings or results (after running the code).

Grading criteria:
1. Coding: Use of Python programming
2. Comment

Submission:
1. Zip your program files and name the zip files as your student ID (e.g., 07123456.zip)
2. Submit your zip file to Canvas. Multiple submissions are allowed but only the last submission will be graded. Therefore, you need to **make sure the last submission before the deadline is the best and more importantly it works**.
3. Late submission within 24 hours will result in a penalty of 30% deduction in your total marks. No further late submission is allowed.
4. Plagiarism (Copying) is a serious concern. Students might search for information/reference/program on the Internet and "Copy & Paste" it directly in their assignments. Hence, a strict rule is applied that **MORE THAN SEVEN WORDS** copied from a source is considered as a cheating. The **MINIMUM** penalty is zero marks for the particular assignment.