ConfigurationManual

MScResearchProject
Data Analytics

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Project Submission Sheet
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Programme:	Msc in Data Analytics
Year:	2019-2020
Module:	MSc Research Project
Supervisor:	Dr. Muhammad Iqbal
Submission Due Date:	17/08/2020
Project Title:	Configuration Manual
Word Count:	1018
Page Count:	6

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Configuration Manual

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1   Introduction

The configuration manual is guide to let us know about the project implementation like how the research was completed successfully. The manual consists of a series of all steps taken with hardware and software used for implementing research - Fashion Outfit Design Image Synthesis Using Comparative Study of Generative Adversarial Networks.

2   System Specification

2.1   Hardware Specification:

MacOS Catalina 64 bit operating system, 8 GB RAM, 128 GB Memory, Intel Core i5, with Intel UHD graphics card.[1]

2.2   Softwares Required:

(1) Python:- Python is a programming language used for coding in open platform. This software is open source and can be downloaded from the official website. Python was used for implementing models in this research.

(2) Anaconda Navigator:- This software is Graphical User Interface for using Python and various different tools provide environments, packages and channels. This was used in this research.

(3) Google Collaboratory :- This is online notebooks provides external GPU for execution of long computation power codes.

2.3   Packages and Libraries Used:

(1)   TensorFlow = version 1.13.2 [4]

(2)   NumPy

(3)   scikit-learn [3]

(4)   matplotlib [2]

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[1] https://www.apple.com/ie/macos/catalina/

(5)   keras [1]

(6)   os

3   Steps to generate new images:

(1) Generative Adversarial Network (GAN) model.
(2) Consists of 2 networks – Generator and Discriminator.
(3) Advanced version of GANs – DCGAN and CapsGAN

4   Step by Step guide to execute the program:

(1) Firstly, critically analyse the research domain.
(2) Exploring the data and pre-processing it.
(3) Data Modelling.
(4) Model Evaluation.

5   Data Downloading:

Data is acquired from TensorFlow which is in-built dataset having 70K greyscale images of Fashion outfits. Below is code for downloading the data.

```python
#read the dataset
from tensorflow.examples.tutorials.mnist import input_data
mnist = input_data.read_data_sets("MNIST_Fashion/")
```

Figure 1: A code snippet for downloading data .

6   Data Pre-processing:

1. Checking dataset shape
2. Null or missing values
3. Exploring train and test data
4. Normalization and Reshaping

7   Data Modelling:

1. GAN model
2. DCGAN

3. CapsGAN

8   Evaluation:

In the end, the results are printed in the images form as shown below which is evaluated as quality and quantity wise as shown in figure (2) below.
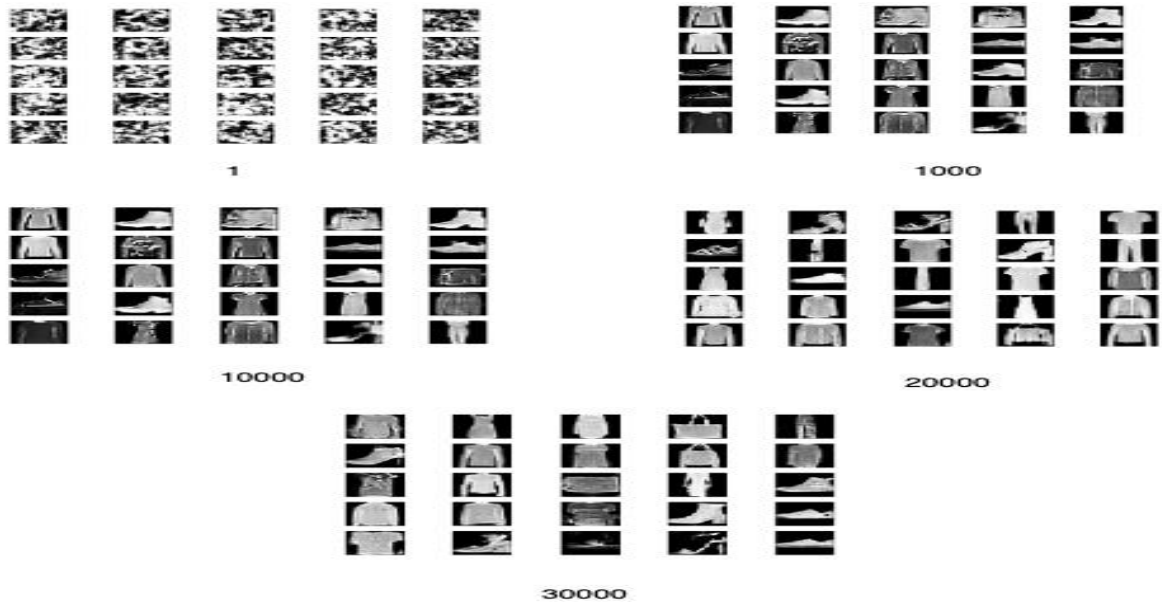

Figure 2: Generated images by the model.

References

[1].   keras (2019). keras-neural network library, Available at https://keras.io/. [Online; accessed 2019].

[2].   matplotlib.org (2019). matplotlib-Python Plotting Library, Available at https://matplotlib.org/. [Online; accessed 2019].

[3].   scikit learn.org (2019). scikit-learn machine learning library, Available at https://scikit-learn.org/stable/. [Online; accessed 2019].

[4].   tensorflow (2019). tensorflow-machine learning library, Available at https://www.tensorflow.org/. [Online; accessed 2019].