Name: Iverson M. Noja   Section: BSIT 3 R5

Course code: IT325   Professor: Mrs. Geraldine Blanco

Course Description: Elective 2 – Machine Learning

Semester / SY 2nd Semester – 2022- 2023

k-Nearest Neighbors (kNN) Algorithm

Objectives:

- To apply kNN algorithm to a fisheriris dataset.
- To identify similarity distance of the two (2) data points in a given dataset by applying distance function.
- To perform data analysis on fisheriris dataset.

Directions:

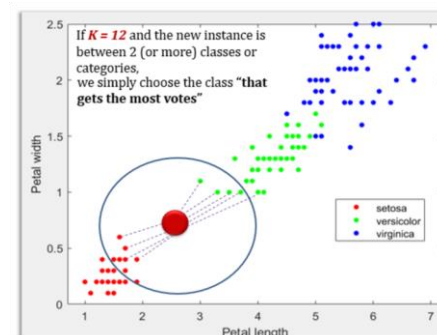1. Open fisheriris dataset (see attached **fisheriris.xlsx**) or you may download the csv it here:

   https://gist.githubusercontent.com/curran/a08a1080b88344b0c8a7/raw/0e7a9b0a5d22642a06d3d5b9b cbad9890c8ee534/iris.csv

2. Determine the k-Nearest Neighbors by the finding the similarity distance (using Euclidian distance) of the two (2) data points (i.e. from the given new instance to each of the elements/data points in the whole dataset).

   *Note: Check attached file for the value of **k** and **new instance** assigned to you.*

   Sample final output:

Deadline: <Check your USTeP account>.

Filename: <surname_firstname_activity5_kNN>.pdf

*Example***: barbosa_jocelyn_activity5_kNN.pdf.**

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Data and Distance to Iverson

Each student is assigned to a specific K and new instance. Please see attached list for your reference.

	Name	K	sepal_width	petal_length		$(a_1 - b_1)^2$	$(a_2 - b_2)^2$	$\sqrt{(a_1 - b_1)^2 + (a_2 - b_2)^2}$ (Distance)
1	ABRAGAN , Juren Roy Roa	5	3	1.1		0.04	14.44	3.8053
2	AJERO, Mark John Ceballos	6	2.9	1.4		0.01	12.25	3.5014
3	ALILIN, Sofia Dara Pabualan	7	3	1.3		0.04	12.96	3.6056
4	AMBULO , Bohari Sultan	8	3.2	1.3		0.16	12.96	3.6222
5	ARANDID , Kim Gedie Sanchez	9	2.3	1.3		0.25	12.96	3.6346
6	ARAQUIL , Tristan Cadiz	10	3.1	1.5		0.09	11.56	3.4132
7	ARTES, Gemma -	11	3.4	1.4		0.36	12.25	3.5511
8	BAGONGON , Trisha Jan Veranda	12	3.6	1		0.64	15.21	3.9812
9	BASE , Crystal Joy Estosane	13	3.2	1.4		0.16	12.25	3.5228
10	BATIQUIN , Cherry Mae Cabillan	14	3.2	1.3		0.16	12.96	3.6222
11	BERNASOL , Keannu Christian Arbuis	15	3.2	1.6		0.16	10.89	3.3242
12	CAÑASA, James Ryan Cariño	16	3.4	1.6		0.36	10.89	3.3541
13	CHAVEZ, Dan Joshua Lacre	17	3	1.4		0.04	12.25	3.5057
14	DELA PEÑA , Prince Kurt Laurence	18	2.4	3.3		0.16	2.56	1.6492
15	EDNILAN , Jonathan Pasos	19	2	3.5		0.64	1.96	1.6125
16	ENGRACIA , Jayde Mike Tapeseria	20	2.3	3.3		0.25	2.56	1.6763
17	ESTRERA, Glyamitz Manrique	21	2.5	3		0.09	3.61	1.9235
18	FABORES , Margie Balansag	22	2.7	3.9		0.01	1	1.005
19	GABE , Kaye Damalan	23	3	4.5		0.04	0.16	0.4472
20	GABRIENTO , Anna Nicole Madrazo	24	2.4	3.8		0.16	1.21	1.1705
21	GABUT , Anton Joseph Cabeguin	25	2.4	3.7		0.16	1.44	1.2649
22	GENSON, Edmar John Obeñita	26	2.5	4		0.09	0.81	0.9487
23	GONZALES, Paul Ryan	27	2.6	4.4		0.04	0.25	0.5385
24	IBAHAY , Mike Emmanuel Salon	28	2.9	3.6		0.01	1.69	1.3038
25	LOREJO, Mark Dave Mejos	29	3	4.5		0.04	0.16	0.4472
26	MAGALLONES, Alduin Carlo Lamdagan	30	2.5	3.9		0.09	1	1.044
27	NOJA , Iverson Maga	31	2.8	4.9		0	0	0
28	PACHECO, Marc Vince	32	2.5	5		0.09	0.01	0.3162
29	PAGARAN, Mary Lyn Monique	33	2.7	5.1		0.01	0.04	0.2236
30	PANCHITO , Angelica Vergara	34	2.8	5.1		0	0.04	0.2
31	PONGOT, Jophiel Telen	35	2.7	5.1		0.01	0.04	0.2236
32	RAMBONANZA , Mary Antonette Sumili	36	3	5.1		0.04	0.04	0.2828
33	ROMEO, Michael Ray Vega	37	3	4.8		0.04	0.01	0.2236
34	SAGRADO, Princess Genevieve G.	38	3	4.9		0.04	0	0.2
35	SANTOS , Aarone Rodel M.	39	2.6	5.6		0.04	0.49	0.728
36	TOLEDO , Kurt Zidane Olaso	40	2.8	4.8		0	0.01	0.1
37	UCAB , Dominic Gabriel Go	41	3.4	5.4		0.36	0.25	0.781
38	YARE, Jerilyn Muego	42	3.3	6		0.25	1.21	1.2083

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Final output:

Nearest Neighbors (K=31)	
Distance	Owner
0.1	TOLEDO , Kurt Zidane Olaso
0.2	PANCHITO , Angelica Vergara
0.2	SAGRADO, Princess Genevieve G.
0.728	SANTOS , Aarone Rodel M.
0.781	UCAB , Dominic Gabriel Go
0.2236	PONGOT, Jophiel Telen
0.2236	ROMEO, Michael Ray Vega
0.2236	PAGARAN, Mary Lyn Monique
0.2828	RAMBONANZA , Mary Antonette Sumili
0.3162	PACHECO, Marc Vince
0.4472	GABE , Kaye Damalan
0.5385	GONZALES, Paul Ryan
0.9487	GENSON, Edmar John Obeñita
1.044	MAGALLONES, Alduin Carlo Lamdagan
1.005	FABORES , Margie Balansag
1.1705	GABRIENTO , Anna Nicole Madrazo
1.2083	YARE, Jerilyn Muego
1.2649	GABUT , Anton Joseph Cabeguin
1.3038	IBAHAY , Mike Emmanuel Salon
1.6125	EDNILAN , Jonathan Pasos
1.6492	DELA PEÑA , Prince Kurt Laurence
1.6763	ENGRACIA , Jayde Mike Tapeseria
1.9235	ESTRERA, Glyamitz Manrique
3.3242	BERNASOL , Keannu Christian Arbuis
3.3541	CAÑASA, James Ryan Cariño
3.4132	ARAQUIL , Tristan Cadiz
3.5014	AJERO, Mark John Ceballos
3.5057	CHAVEZ, Dan Joshua Lacre
3.5228	BASE , Crystal Joy Estosane