**Applied Statistics - Lab 5**

**Date of performance:** 16-09-2021

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**Batch:** AI&ML B2

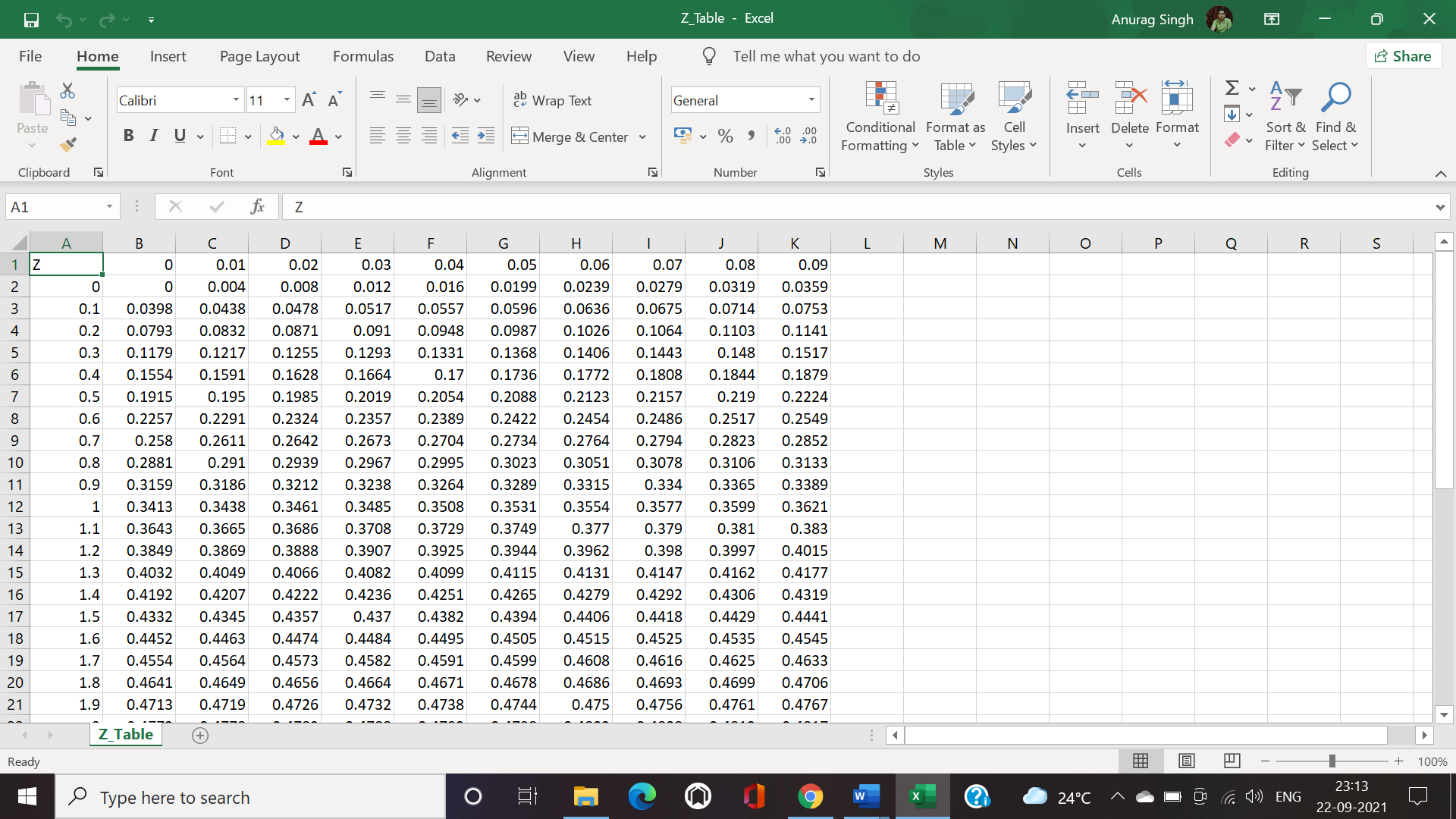
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**Topic: Z-Table and the Area under the curve**

**Problem:**

Import the z table as a data structure in python. Create some 5 demo examples to find the area under the curve and report the answer from the z-table.

**Z-TABLE**



**Code:**

data = np.random.randint(10,100,size=35)

print("ORIGINAL DATA IS:", data)

mean = statistics.mean(data)

stdev = statistics.stdev(data)

z\_values=[]

for values in data:

z=(values-mean)/stdev

z={}.format(z)

z\_values.append(z)

z\_values=list(map(float,z\_values))

print("STANDARD NORMALISE DATA IS:")

print(z\_values)

print()

for i in range(1,6):

random\_variable=random.choice(z\_values)

print(random\_variable)

row=0

column=0

if (random\_variable>0):

column=float({a}.format(a=((random\_variable\*100)%10)\*0.01))

row=float({a}.format(a=random\_variable - column))

print(f'column:{column},Row:{row}')

else:

column=float({}.format(-((random\_variable\*100)%(-10)\*0.01))

row=float({a}.format(a=random\_variable + column))

print(f'column:{column},Row:{row}')

z=(value-mean)/stdev

z={}.format(z)

z\_values.append(z)

z\_values=list(map(float,z\_values))

print("STANDARD NORMALISED DATA: ")

print(z\_values)

print()

for i in range(1,6):

random\_variable=random.choice(z\_values)

print(random\_variable)

row=0

column=0

if (random\_variable>0):

column=float({a}.format(a=((random\_variable\*100)%10)\*0.01))

row=float({a}.format(a=random\_variable-column))

print(f'column:{column},Row:{row}')

else:

column=float({a}.format(-(a=(random\_variable\*100)%(-10)\*0.01))

row=0

row=float({}.format(random\_variable+column))

print(f'column:{column},Row:{row}')

value1=df.loc[df['Z']]==row, str(column)]

value2=1-value1

print(f'P(X<{random\_variable})={value1}')

print(f'P(X<{random\_variable})={value2}')