

## pseudocode of experiment no:1

1. Construct an array using numpy.
2. Compute the mean, median, mode, variance and Standard deviation of each Subject using numpy and Scipy with proper axis values.
3. Print the computed mean, median, mode, variance and Standard deviation of each Subject.
4. Compute the mean, median, mode, variance and Standard deviation of each Student using numpy and Scipy with proper axis values.
5. Print the computed mean, median, mode, variance and Standard deviation of each Student.



## Experiment - 1

Consider a class of 7 students. Suppose they appear for mid-term exams and scored the following marks out of 20.

Name	Subject 1	Subject 2	Subject 3	Subject 4	
Student 1	10	8	15	11.5	44.5
Student 2	14	9	7.5	11	41.5
Student 3	4	17	11.5	9	48.5
Student 4	7	14.5	10	12	43.5
Student 5	9.5	12	10.5	14	46
Student 6	15	15	7	12	52
Student 7	19	15.5	11	7.5	53

Compute the mean, median, mode, variance and SD of each Subject and each Student

Program

```
import numpy as np
import scipy as sp
from scipy import
```

```
marks = np.array ([[10, 14, 11, 7, 9.5, 15, 19], [8, 9, 17, 14.5, 12,
15, 15.5], [15, 7.5, 11.5, 10, 10.5, 7, 11],
[11.5, 11, 9, 12, 14, 12, 7.5]])
```

```
marksheet = marks.T
print(marksheet)
```



```
[[ 10      8      15      11.5
   14      9      7.5      11
   11      17      11.5      9
   4       14.5     10      12
   9.5     12      10.5     14
   15      18      7       12
   14      15.5     11      7.5]]
```

```
print(np.mean(marksheet, axis=0))
```

```
# Subjectwise mean
```

```
[12.21428571 13.42857143 10.35714286 11]
```

```
# Student wise mean
```

```
print(np.mean(marksheet, axis=1))
```

```
[11.125 16.375 12.125 10.875 11.5 13 13.25]
```

```
# Subject wise median
```

```
print(np.median(marksheet, axis=0))
```

```
[11 14.5 10.5 11.5]
```

```
# Subject wise median
```

```
print(np.median(marksheet, axis=1))
```

```
[16.75 10 11.25 11 11.25 13.5 13.25]
```

```
# Subject wise mode
```

```
print(np.unique(mode(marksheet, axis=0))
```

```
ModeResult(mode=array([ 4., 8., 4., 12.]))
```

```
Count=array([1, 1, 1, 2]))
```

```
# Student wise mode
```

```
print(np.unique(mode(marksheet, axis=1))
```

```
ModeResult(mode=array([ 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 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623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 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1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054,
```



[7.5]

[9]

[7.7]

[9.5]

[7.5]]), count = array ([0],

[1],

[1],

[1],

[1],

[1],

[1]]))

print (np. ptp (marksheet, axis = 0))

[12. 16. 8. 6.5]

print (np. ptp (marksheet, axis = 1))

[7. 6.5, 8. 7.5 4.5 11. 11.5]

# Subject wise variance

print (np. var (marksheet, axis = 0))

[13.98949592 12.8844551 6.12244821 3.9284143]

# Student wise variance

print (np. var (marksheet, axis = 1))

[6.546875 5.921875 8.496875 4.546875 2.840 16.5  
[9.0625]

# Subject wise Standard deviation

print (np. std (marksheet, axis = 0))

[3.74029356 3.58999196 2.4743583 1.98206242]

# Student wise Standard deviation

print (np. std (marksheet, axis = 1))

[2.55868619 2.43349029 2.96595263 2.74418762  
1.6955825 4.0620192 4.3660623]