

# Assignment 2

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Download all python codes from

<https://github.com/rubeenaafreen20/EE5600AI-ML/tree/master/Assignment2/Code>

and latex codes from

<https://github.com/rubeenaafreen20/EE5600AI-ML/tree/master/Assignment2>

4 OUTPUT

The output of Python program is attached below

```
random numbers generated are [61388343, 99941562, 84381683, 87531882, 5682212, 47906154, 57963697, 51368379,
82276414, 44357633, 78313359, 41828937, 40739887, 19121151, 93051570, 43875270, 88988168, 18679508, 2938716,
96708031, 54717110, 91067092, 52626804, 54037935, 26001423, 36807069, 20413964, 1308197, 44548531, 23544849,
31222988, 92472567, 12193346, 42266464, 46878738, 15919583, 58928480, 88701471, 73373626, 81355192, 5147804,
90206638, 19637806, 36162481, 65083650, 8053684, 91228838, 12256823, 64556979, 32492399, 69775171, 89735516,
79888382, 88750976, 28317617, 82908546, 29900454, 35300632, 13288305, 26422104, 50638513, 64610397, 32952055,
51049622, 28162038, 79792385, 64659348, 54255457, 77414896, 78751476, 89677366, 37696886, 4809361, 45365495,
4511165, 48658712, 22546213, 75051924, 79466289, 26708956, 19471177, 41728388, 88359838, 26863399, 2911437,
9677524, 18328029, 87728531, 23119499, 2246668, 42380995, 6331822, 8470077, 58392864, 32878768, 79518381,
28678394, 11423418, 94365314, 398208, 32501956, 42735685, 34997422, 47212068, 62371276, 19024624, 39541242,
58172265, 99023473, 15965846, 74968558, 44038527, 57149391, 80089109, 89888989, 82781776, 92342942, 36708431,
12470939, 99248377, 83692772, 45079785, 25566743, 68468643, 90426213, 61666315, 33537665, 26464031, 19968307,
14976498, 87664736, 76672339, 74172428, 31057983, 90415422, 95277262, 91923511, 28070388, 32668795, 71283456,
82388169, 66597640, 44026478, 1559270, 9827181, 41917316, 38908343, 55315911, 20277138, 35048842, 99408971,
74148422, 84956209, 85800179, 13194696, 19955442, 61521968, 91407795, 5272741, 68996573, 37202837, 2750899,
92069707, 35313118, 67098477, 77688866, 43582877, 66482235, 28498587, 61247829, 8302896, 24810474, 38006107,
3336170, 14043767, 65679283, 54094630, 9908452, 38387636, 53958357, 85468326, 47265648, 74455196, 95385262,
87730211, 26611431, 4193231, 84077892, 51195021, 87668022, 95292545, 51310235, 65926491, 64086179, 38563307,
76594031, 22806274, 20892953, 20203820, 80967946]
Last digits of each of these numbers generated are:
[3, 2, 3, 2, 2, 4, 7, 9, 4, 3, 9, 7, 7, 1, 0, 0, 8, 8, 6, 1, 0, 2, 4, 5, 3, 9, 4, 7, 3, 9, 8, 7, 6, 4, 8, 3, 0,
1, 6, 2, 4, 0, 6, 1, 0, 4, 0, 3, 9, 9, 1, 6, 2, 0, 7, 6, 4, 2, 5, 4, 3, 7, 5, 2, 0, 5, 0, 7, 6, 6, 6, 1, 5, 5,
2, 3, 4, 5, 6, 7, 8, 5, 9, 7, 4, 9, 3, 9, 0, 5, 2, 7, 4, 0, 1, 4, 8, 4, 8, 6, 5, 2, 8, 6, 4, 2, 5, 3, 6, 8, 7, 1,
9, 9, 6, 2, 1, 9, 7, 2, 5, 3, 3, 3, 5, 1, 7, 0, 6, 9, 8, 3, 2, 2, 1, 8, 5, 6, 9, 0, 8, 0, 1, 6, 3, 1, 0, 2, 1,
2, 9, 9, 6, 2, 8, 5, 1, 3, 7, 9, 7, 8, 7, 6, 7, 5, 7, 9, 6, 4, 7, 0, 7, 3, 0, 2, 6, 7, 6, 8, 6, 2, 1, 1, 1, 2, 2, 1,
2, 5, 5, 1, 9, 7, 3, 4, 3, 0, 6]
frequency distribution table:
[19 20 25 28 17 15 26 23 15 19]
frequency distribution table as given in the problem
[22 26 22 22 20 10 14 28 16 20]
A random last digit chosen: 3
Probability of 3 as unit digit is: 0.1
```

Fig. 0: Output

Digit	0	1	2	3	4	5	6	7	8	9
Frequency	22	26	22	22	20	10	14	28	16	20

TABLE 0: Frequency Distribution

Without looking at the page, the pencil is placed on one of these numbers, i.e., the number is chosen at random. What is the probability that the digit in its unit place is 6?

## 2 EXPLANATION

probability is defined as

$$P = \frac{\text{number of outcomes}}{\text{Sample space}} \quad (2.0.1)$$

## 3 SOLUTION

Let  $X \in \{i\}_{i=1}^{i=6}$  and  $f_i$  be the corresponding frequency. Then,

$$P_r(X = i) = \frac{f_i}{200} \quad (3.0.1)$$

From table 0,

$$P_r(X = 6) = \frac{14}{200} \quad (3.0.2)$$

$$= 0.07 \quad (3.0.3)$$