Assignment 3

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Question: Refer to Table 14.7, Chapter 14.

Marks	Number of Students
0 - 20	7
20 - 30	10
30 - 40	10
40 - 50	20
50 - 60	20
60 - 70	15
70 - 100	8
Total	**90**

TABLE I: Marks of Students

Find the probability that a Student Obtained:

(i) Less than 20% in the mathematics test.

(ii) Marks 60 or Above

Solution: Let's denote the outcome of the experiment by a random variable X such that it maps to following set of integers, $X \in [0, 100]$.

(i) $X < i$ denotes that the Student has less than i marks such that $i \in [0, 100]$

$$\Pr(X < 20) = \frac{7}{90} \tag{1}$$

$$= \boxed{0.078} \tag{2}$$

(ii) $X \geq i$ denotes that the Student has greater than or equal to i marks such that $i \in [0, 100]$

$$\Pr(X \geq 60) = \frac{23}{90} \tag{3}$$

$$= \boxed{0.256} \tag{4}$$

Output of the program used to verify whether the solution is correct:

```
vishal@WINDOWS-PC:/mnt/d/WSL/AI1110-Assignments/Assignment-3/code$ python3 main.py
Probability of Marks 0 - 20 is 0.078
Probability of Marks 60 - 70 is 0.167
Probability of Marks 70 - 100 is 0.089
Thus, Probability of Marks 60 - 100 is 0.256
```

Fig. 1: Output of the Program