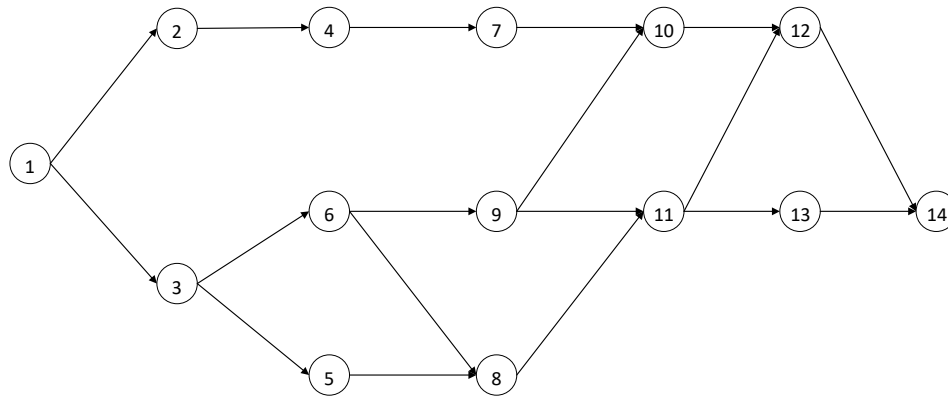


- 1、 Using the program evaluation and review technique to calculate the probability the project can be finished before 70 days.



| activity | Optimistic time | Realistic time | Pessimistic time | | sigma | ES | EF | LS | LF | slack |
|----------|-----------------|----------------|------------------|-------|----------|-------|-------|-------|-------|-------|
| 1 | 4 | 5 | 8 | 5.33 | 0.666667 | 0 | 5.33 | 0.00 | 5.33 | 0.00 |
| 2 | 4 | 6 | 9 | 6.17 | 0.833333 | 5.33 | 11.5 | 7.16 | 13.33 | 1.83 |
| 3 | 6 | 9 | 13 | 9.17 | 0.666667 | 5.33 | 14.50 | 5.33 | 14.5 | 0.00 |
| 4 | 10 | 12 | 18 | 12.67 | 1.333333 | 11.5 | 24.17 | 13.33 | 26 | 1.83 |
| 5 | 5 | 7 | 9 | 7.00 | 0.666667 | 14.5 | 21.50 | 26.70 | 33.7 | 12.20 |
| 6 | 11 | 12 | 14 | 12.17 | 0.5 | 14.5 | 26.67 | 14.50 | 26.67 | 0.00 |
| 7 | 9 | 10 | 15 | 10.67 | 1 | 24.17 | 34.84 | 26.00 | 36.67 | 1.83 |
| 8 | 4 | 6 | 8 | 6.00 | 0.666667 | 26.67 | 32.67 | 33.70 | 39.7 | 7.03 |
| 9 | 7 | 10 | 13 | 10.00 | 1 | 26.67 | 36.67 | 26.67 | 36.67 | 0.00 |
| 10 | 8 | 9 | 14 | 9.67 | 1 | 36.67 | 46.34 | 36.67 | 46.34 | 0.00 |
| 11 | 4 | 7 | 8 | 6.67 | 0.666667 | 39.70 | 43.34 | 39.70 | 46.37 | 3.03 |
| 12 | 6 | 8 | 12 | 8.33 | 1 | 46.34 | 54.67 | 46.34 | 54.67 | 0.00 |
| 13 | 6 | 7 | 10 | 7.33 | 0.666667 | 47.34 | 50.67 | 47.34 | 54.67 | 4.00 |
| 14 | 3 | 5 | 9 | 5.33 | 1 | 54.67 | 60.00 | 54.67 | 60 | 0.00 |

Critical path = 1,3,6,9,10,12,14

Standard deviation 2.450804

$$S = \sqrt{\sigma_1^2} + \sqrt{\sigma_3^2} + \sqrt{\sigma_6^2} + \sqrt{\sigma_9^2} + \sqrt{\sigma_{10}^2} + \sqrt{\sigma_{12}^2} + \sqrt{\sigma_{14}^2}$$

$$S = 2.46$$

$$P(T \leq 70) = \Phi\left(\frac{t - T_E}{S}\right)$$

$$P(T \leq 70) = \Phi\left(\frac{70 - 58}{2.46}\right) = \Phi(4.04) \approx 99.99\%$$