Question

Fiona is a final-year computing undergraduate student who in her third year undertook a placement with the ICT department of an insurance company as a support analyst and then a network manager. The placement year was very busy and rewarding as the company saw ICT as providing a business advantage in what was a very dynamic and aggressively competitive sector. The project that Fiona proposes to do in her final year will use the insurance company as a client. The proposed project involves gathering requirements for an application that records details of change requests for operational systems made by users and then tracks the subsequent progress of the change. Having gathered the requirements she is to design the application, then build and implement it.

Identify possible risks in the proposed project which Fiona should take into account.

Answer

- Lack of client commitment – as this could be regarded as ‘only a student project’ it may be difficult to get the client to spare adequate time for such things as the clarification of requirements
- Conflicts between university and business requirements – the business might want, for example, the project to complete to a timescale that does not fit in with the time when the university expects the project to be done
- Technical problems – including:
- Fiona’s placement was spent as a support analyst and then as a network manager. She may have had little recent system-building practice and may find that as a consequence that she runs into technical problems
- The hardware/software environment at the university may be different from that of the business where the application is actually going to be used.

Question

Mo is a systems analyst who is gathering requirements for an application that will record details of the training undertaken by fire-fighters in the client fire brigade, Details of the training units successfully completed by fire-fighters are to be input to the application by trainers who are themselves senior and active fire-fighters. Mo needs to interview a trainer to obtain his/her requirements. Because of the senior firefighter's other duties, the interview has to be arranged two weeks in advance. There is then a 20% chance of the firefighter being unable to attend the interview because of an emergency call-out. Each week that the project is delayed costs the fire brigade approximately £1,000.

(a) Provide an estimate of the risk exposure (as a financial value) for the risk that the senior firefighter might not be able to attend at the times needed.

(b) Suggest possible risk mitigation actions.

Answer

a).

Risk exposure = Probability of risk*impact of risk

Probability of risk =20/100 ==0.2

Impact of risk =1000Euro

Risk Exposure = 0.2* 1000 ==200Euro

b).

Risk Mitigation actions

- **Avoidance:** In order to avoid risk, step out from all business activities, cancel the factories and projects, etc. Starting a project which has less risk or no risk can be used to avoid risk.
- **Acceptance:** Every product produced has a finite chance of failing from the customers. If the producer is ready to accept the risk, accept it. When the decision to accept the risk increases, the possibility of risk will be decreased.
- **Reduction:** Improving the ability to find design flaws improves the ability to make the appropriate control risk. Another method to reduce or control risk is to diversify. The new products, technologies, and markets makes the team the ability to limit the high-risk opportunities to a manageable level.
- **Transference:** This process focuses on the transference of risk to another one. This process to transfer risk to another organization is with the purchase of insurance.

Question

Below are details of the project. All times are on days

Activity	Depends on	Optimistic time	Most likely	Pessimistic
A	–	8	10	12
B	A	10	15	20
C	B	5	7	9
D	–	8	10	12
E	D,C	3	6	9

Using the activity times above:

- Calculate the expected duration and standard deviation for each activity.
- Identify the critical path.
- Draw up an activity diagram applying critical chain principles for this project
  - Locate the places where buffers will need to be located.
  - Assess the size of the buffers.
  - Start all activities as late as possible.

Answer

a). We know that the Expected Duration can be calculated by

- Te = (O + 4T + P) / 6

where Te = Expected Time Duration

O = Optimistic Time

T = Most Likely

and P = Pessimistic Time

Similarly, Standard Deviation can be calculated as:

- SD = (P - O) / 6

where SD = Standard Deviation

P = Pessimistic Time

and O = Optimistic Time

For Activity A:

Expected Duration Te = (O + 4M + P) / 6

= (8 + 4*10 + 12)/6

= (8+40+12)/6

= 60/6 = 10 days

Standard Deviation SD = (P - O) / 6

= (12-8)/6

= 4/6 = 0.6666666666666666 = 0.67 (approx.)

Similarly, using the formula

For Activity B:

Te = (O + 4M + P) / 6 = 15 days

SD = (P - O) / 6 = 1.6666666666666667

For Activity C:

Te = (O + 4M + P) / 6 = 7 days

SD = (P - O) / 6 = 0.6666666666666666

For Activity D:

Te = (O + 4M + P) / 6 = 10 days

SD = (P - O) / 6 = 0.6666666666666666

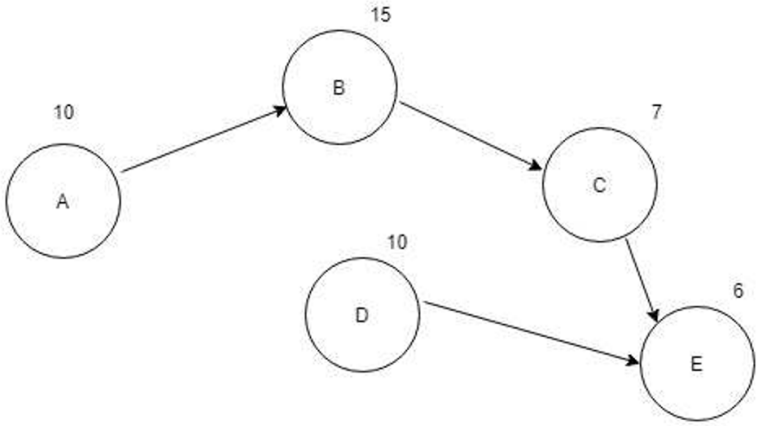
For Activity E:

Te = (O + 4M + P) / 6 = 6 days

SD = (P - O) / 6 = 1

B.

Activity	Predecessor	Duration(days)
A	--	10
B	A	15
C	B	7
D	--	10
E	D,C	6

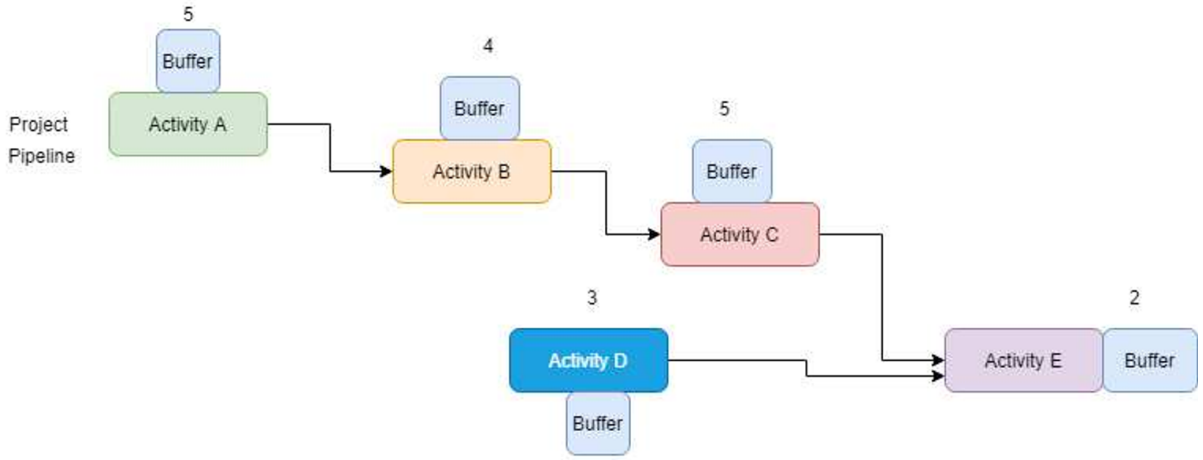


A --> B --> C --> E = 10 + 15 + 7 +6 = 38 days

D --> E = 10 + 6 = 16 days

Hence, the longest duration path is 38 days path i.e A-->B-->C-->E
Therefore, it is the **Critical path** for the project and the duration of the project will be 38 days.

C.



Total Buffer of project = 50% of critical path