Discuss which UML models are most applicable at different stages of the Software Development Life Cycle.

Use case diagrams are most applicable at the Planning stage. This is an excellent tool to create an overall summary of what the system is required to do. In my opinion, this should be the first UML diagram created and can act as a guideline to produce the other UML diagrams. Furthermore, consultation with the customer or end users would be advantageous while producing the Use case diagram to ensure it fulfils all their requirements. The use case diagram can also be referred to towards the end of the software development life cycle to ensure that all the requirements have been met.

Class diagrams are more applicable at the design stage. The class diagrams are a great tool to provide the development team with the overall structure of the software. Furthermore, the overall software can be broken down at this stage to allow multiple developers to work on the project simultaneously with agreed interfaces. At this stage, the classes, objects and methods can all be identified and the way in which they interact is decided.

The state machine diagram can be used at the design and development stage to design how a specific object will act.

Activity diagrams can also be used during the design stage to describe the workflows of the software and the state machine diagrams described above.

Sequence diagrams are applicable during the development process to overcome smaller issues. This can allow the developer to structure their coding to achieve specific goals which are not that important at a higher level of abstraction.