

# Spring Professional Exam Tutorial v5.0

## Question 01

Question 01 - What is the concept of AOP?  
Which problem does it solve? What is a cross cutting concern? Name three typical cross cutting concerns. What two problems arise if you don't solve a cross cutting concern via AOP?

# Question 01 - What is the concept of AOP?

AOP - Aspect Oriented Programming - A programming paradigm that complements Object-oriented Programming (OOP) by providing a way to separate groups of cross-cutting concerns from business logic code. This is achieved by ability to add additional behavior to the code without having to modify the code itself. This is achieved by specifying:

- ▶ Location of the code which behavior should be altered - Pointcut is matched with Join point
- ▶ Code which should be executed that implements cross cutting concern - Advice

# Question 01 - Which problem does it solve?

Aspect Oriented Programming solves following challenges:

- ▶ Allows proper implementation of Cross-Cutting Concerns
- ▶ Solves Code Duplications by eliminating the need to repeat the code for functionalities across different layers, such functionalities may include logging, performance logging, monitoring, transactions, caching
- ▶ Avoids mixing unrelated code, for example mixing transaction logic code (commit, rollback) with business code makes code harder to read, by separating concerns code is easier to read, interpret, maintain

# Question 01 - Name three typical cross cutting concerns.

Common cross-cutting concerns:

- ▶ Logging
- ▶ Performance Logging
- ▶ Caching
- ▶ Security
- ▶ Transactions
- ▶ Monitoring

# Question 01 - What two problems arise if you don't solve a cross cutting concern via AOP?

Implementing cross-cutting concerns without using AOP, produces following challenges:

- ▶ Code duplications - Before/After code duplicated in all locations when normally Advise would be applied, refactoring by extraction helps but does not fully solve the problem
- ▶ Mixing of concerns - business logic code mixed with logging, transactions, caching makes code hard read and maintain

