CAIRO UNIVERSITY
Faculty of Computers and Artificial Intelligence

Course: Advanced Software Engineering Tools Lab
Date: 5th April 2022
Instructors: Dr. Mohamed El Ramly **Allowed Time: 60 minutes**

Name: **ID:**

Question1:
Compare between

Jar files	War files	Ear files

Java EE	Java SE

What is meant by:

1. **impedance mismatch**
2. **Application Server**
3. **Container Managed Transactions**
4. **Contexts and Dependency Injection CDI is**
5. **Which command is used for building an application as a jar file?**
6. **Which command is used to execute a jar file?**
7. **identify the most suitable type of session bean, and justify why you chose that session bean type specifically**

My-E-bay is an online buy/sell application, where buyers can post their items for sale. Interested shoppers can bid (يزايد) on an item, or view the current bids (مزايدات). My-E-Bay administrators can view or remove bids. What kind of session beans could be most appropriate for the bid-related actions shown in the figure below.

Draw a diagram for Stateful session bean

Question 2 Create Singleton bean "**Configurations**", this bean is required during the application initialization sequence and should be created before any other EJBs are instantiated, it also has an "**initialization**" method to be called immediately after instantiating the EJB.


```
public class Configurations
{

    public void initialization()
    {
      // do some initialization
      } …
    }
```

A. **1. Convert the following "Course" POJO to stateless EJB. (3 marks)**

```
public class Course
{
   private int courseId;
   private String courseName;
   public Course (int courseId, String courseName)
   {
      this.courseId = courseId;
      this.courseName = courseName;
   }
   public void addCourse(Course item) {  ...  }
   public void findCourse(int id) {  ...  }
   public void updateCourse(Course item) {  ...  }
   public void deleteCourse(int id) {  ...  }
}
```

2. Then create a "**CourseClient**" class to work as a local client for Course EJB then inject and invoke methods from Course EJB.

Question 3

A. Write the code that corresponds to the following schema:

Write the entity classes with their attributes, show JPA relationships and data validations (@size, @notnull, ...)

```
CREATE TABLE `Employee` (
    `id` BIGINT not null auto_increment primary key,
    `name` VARCHAR(50)
);
CREATE TABLE `Project` (
    `id` BIGINT not null auto_increment primary key,
    `name` VARCHAR(50)
);
```

```
CREATE TABLE `EmployeeXProject` (
    `id` BIGINT not null auto_increment primary key,
    `employeeID` BIGINT not null,
    `projectID` BIGINT not null,
    FOREIGN KEY (`employeeID`) REFERENCES Employee(`id`),
    FOREIGN KEY (`projectID`) REFERENCES Project(`id`));
```

public class `Employee`**{** **}**	**public class** `Project`**{** **}**

B. Write a **Typed Query** in the fetchProject function that retrieves a certain project given the “projectID”. Use **named parameters** in your query.

```
@Stateless
public class EmployeeService {
@PersistenceContext(unitName="employeeProject")
private EntityManager entityManager;
public Project fetchProject (Long projectID){
.....
.



}
```