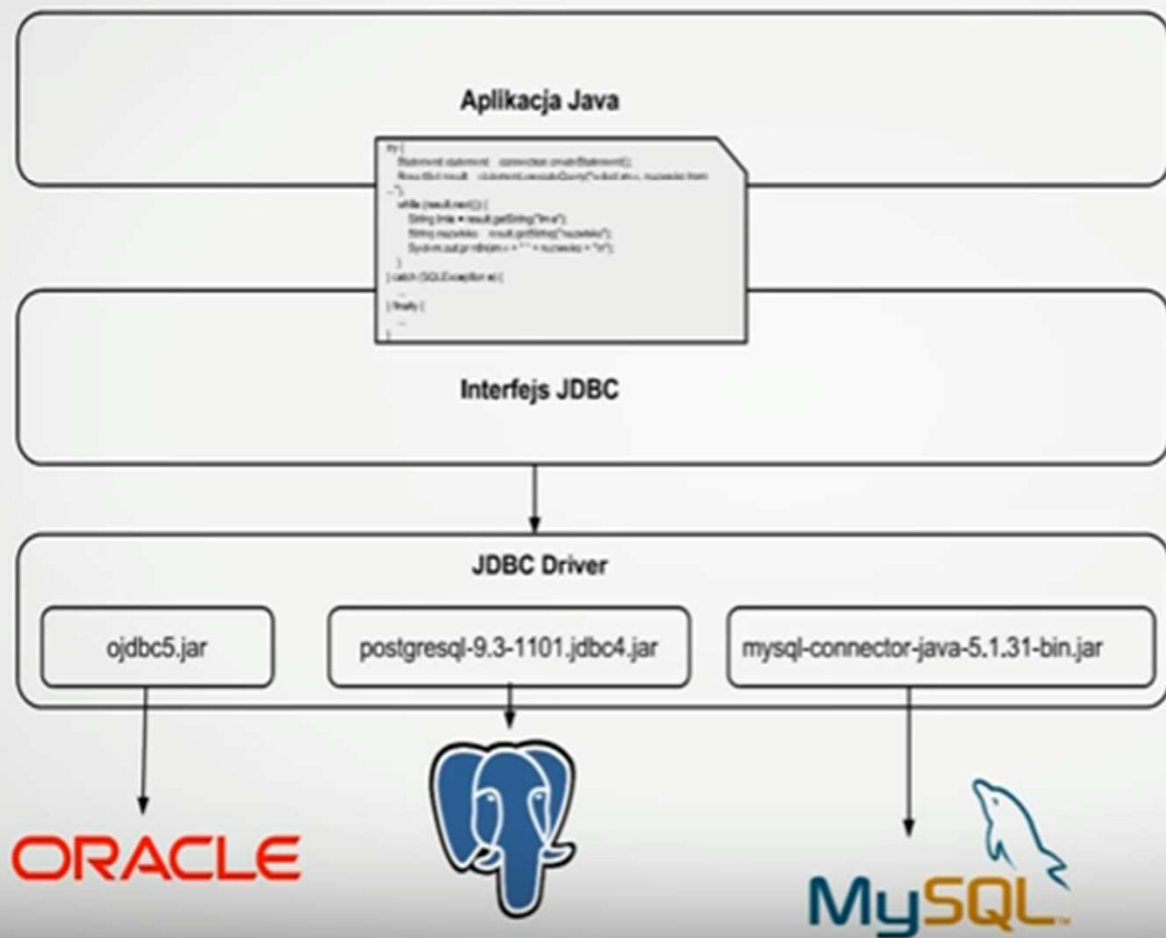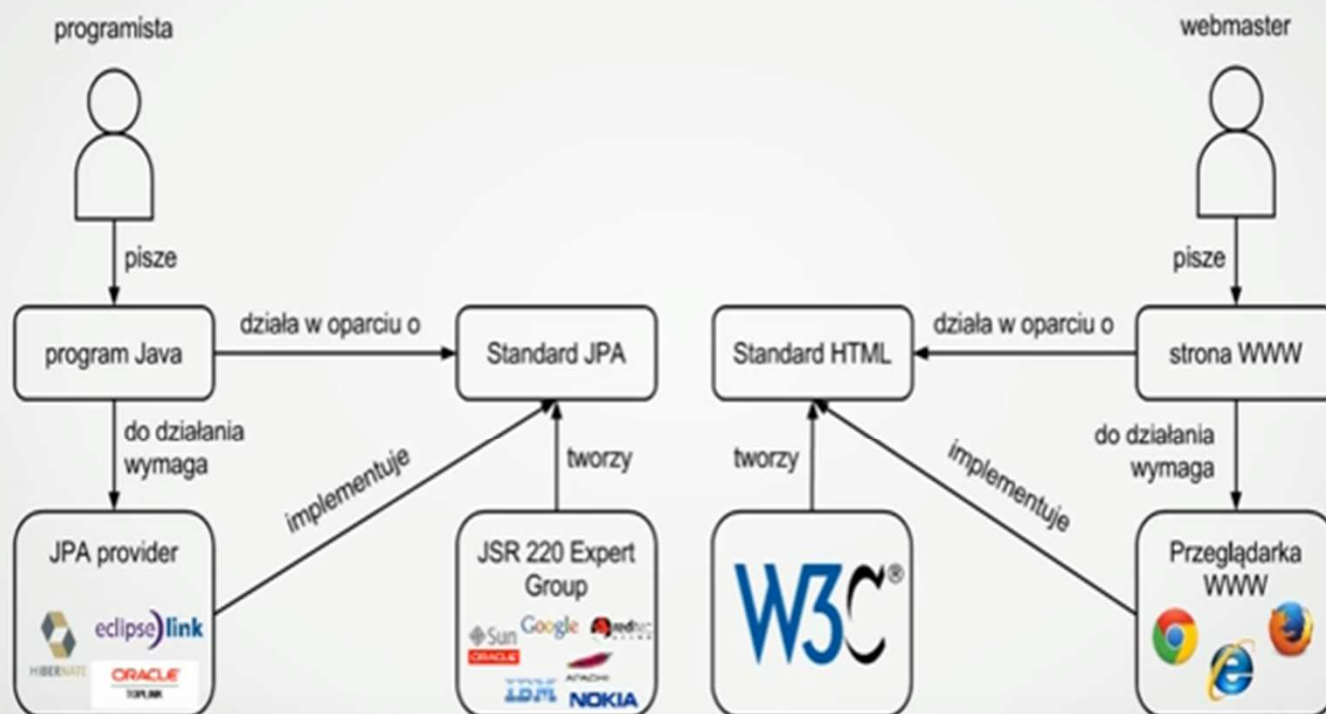# JDBC – Java DataBase Connectivity

ORM – Object-Relational Mapping

- EclipseLink
- Hibernate
- TopLink
- Torque
- i inne

Standard JPA

Co nam będzie potrzebne?

- JDK

- Jakieś IDE (Eclipse EE)

- Jakaś baza danych (MySQL)

- Klient bazy danych (MySQL Workbench)

- Connector/Driver do bazy danych (Google <- MySQL Connector)

- JPA API i Provider (Hibernate)

Konfiguracja projektu JPA

1. Nowy projekt w Eclipse

2. Dodanie potrzebnych bibliotek (driver JDBC oraz provider JPA)

3. Dodanie pliku konfiguracyjnego META-INF/persistence.xml

4. Konfiguracja pliku persistence.xml

5. Rozruch JPA

```xml
persistence.xml ⊠

 1 <persistence xmlns="http://java.sun.com/xml/ns/persistence"
 2     xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 3     xsi:schemaLocation="http://java.sun.com/xml/ns/persistence http://java.sun.com/xml/ns/persistence/persistence_2_0.xsd"
 4     version="2.0">
 5     <persistence-unit name="myDatabase" transaction-type="RESOURCE_LOCAL">
 6         <provider>org.hibernate.ejb.HibernatePersistence</provider>
 7         <properties>
 8             <property name="javax.persistence.jdbc.driver" value="com.mysql.jdbc.Driver" />
 9             <property name="javax.persistence.jdbc.user" value="tutorial" />
10             <property name="javax.persistence.jdbc.password" value="password" />
11             <property name="javax.persistence.jdbc.url" value="jdbc:mysql://localhost:3306/mojaBaza" />
12             <property name="hibernate.dialect" value="org.hibernate.dialect.MySQL5Dialect" />
13             <property name="hibernate.hbm2ddl.auto" value="create-drop"/>
14         </properties>
15     </persistence-unit>
16 </persistence>
```

```java
import javax.persistence.Entity;
import javax.persistence.Id;

@Entity
public class Employee {
    @Id
    private long id;
    private String firstName;
    private String lastName;
    private double salary;

    public long getId() {
        return id;
    }

    public void setId(long id) {
        this.id = id;
    }

    public String getFirstName() {
        return firstName;
    }

    public void setFirstName(String firstName) {
        this.firstName = firstName;
    }

    public String getLastName() {
        return lastName;
    }

    public void setLastName(String lastName) {
        this.lastName = lastName;
    }

    public double getSalary() {
        return salary;
    }

    public void setSalary(double salary) {
        this.salary = salary;
    }
}
```

```java
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.Id;

@Entity
public class Employee {
    @Id
    @GeneratedValue
    private long id;
    private String firstName;
    private String lastName;
    private double salary;

    public long getId() {
        return id;
    }

    public void setId(long id) {
        this.id = id;
    }

    public String getFirstName() {
        return firstName;
    }

    public void setFirstName(String firstName) {
        this.firstName = firstName;
    }

    public String getLastName() {
        return lastName;
    }

    public void setLastName(String lastName) {
        this.lastName = lastName;
    }

    public double getSalary() {
        return salary;
    }

    public void setSalary(double salary) {
        this.salary = salary;
```

```java
public class Main {

    public static void main(String[] args) {
        EntityManagerFactory entityManagerFactory = Persistence.createEntityManagerFactory("myDatabase");
        EntityManager entityManager = entityManagerFactory.createEntityManager();

        Employee employee = new Employee();
        employee.setId(1L);
        employee.setFirstName("Jan");
        employee.setLastName("Nowak");
        employee.setSalary(3333.3);

        entityManager.getTransaction().begin();
        entityManager.persist(employee);
        entityManager.getTransaction().commit();

        entityManager.close();
        entityManagerFactory.close();
    }

}
```

```java
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.Id;
import javax.persistence.Table;

@Entity
@Table(name = "Pracownicy")
public class Employee {
    @Id
    @GeneratedValue
    private long id;
    @Column(name = "imie")
    private String firstName;
    @Column(name = "nazwisko")
    private String lastName;
    @Columne(name = "pensja")
    private double salary;

    public long getId() {
        return id;
    }

    public void setId(long id) {
        this.id = id;
    }

    public String getFirstName() {
        return firstName;
    }

    public void setFirstName(String firstName) {
        this.firstName = firstName;
    }

    public String getLastName() {
        return lastName;
    }

    public void setLastName(String lastName) {
        this.lastName = lastName;
    }
```

```java
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.Id;
import javax.persistence.Table;

@Entity
@Table(name = "Pracownicy")
public class Employee {
    @Id
    @GeneratedValue
    private long id;
    @Column(name = "imie", nullable = false, length = 10)
    private String firstName;
    @Column(name = "nazwisko", columnDefinition = "VARCHAR(10) NOT NULL")
    private String lastName;
    @Column(name = "pensja")
    private double salary;

    private BigDecimal salar

    public long getId() {
        return id;
    }

    public void setId(long id) {
        this.id = id;
    }

    public String getFirstName() {
        return firstName;
    }

    public void setFirstName(String firstName) {
        this.firstName = firstName;
    }

    public String getLastName() {
        return lastName;
    }
```