IBM **Client Innovation Center**
Belgium

Java & SQL - technical test

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A. JAVA

1. Name some IDE's used for Java development

IntelliJ et Android Studio

2. Do you know the following frameworks: maven, jpa, hibernate, junit, mockito. What are they used for?

   Maven: Manage project's builds, releases, dependencies and documentation
   JPA:

3. Explain the difference between inheritance and abstract class in java

4. Explain serialization and deserialization

5. What is a static method and a static variable

6. Explain the following

If a classb inherits (extends) classa
They both have same function fct()
In classb, how to use fct() defined in classa

7. What is the difference between a break statement and a continue statement?

8. Which of the following code snippets handles the exception in a better way and why?

```
Class fooexception extends exception { ... }
Class barexception extends fooexception { ... }
```

Snippet a

```
Public void somemethod() {
        Try {
                Dosomething("a message");
        } catch (fooexception e) {
                Log.error(e)
        } catch (barexception e) {
                Log.error(e);
        }
}
```

Snippet b

```
Public void somemethod() {
        Try {
                Dosomething("a message");
        } catch (barexception e) {
                Log.error(e);
        } catch (fooexception e) {
                Log.error(e)
        }
}
```

9. Which remarks do you have for the following snippet?

```
Public class foo {

        Public int somevara;

        Public foo(int somevara) {
                This.somevara = somevara;
        }

        Public int getsomevara() {
                Return somevara;
        }

        Public void setsomevara(int somevara) {
                This.somevara = somevara;
        }

  Public void incrementsomevarwith5() {
     Somevara += 5;
     System.out.println("the new value of somevara is now: " + somevara);
   }

   Public static void incrementsomevarwith10() {
     Somevara += 10;
     System.out.println("the new value of somevara is now: " + somevara);
   }
}
```

10. What's the "?" here and what is it used for

```
Public void foo(list<? Extends number> x){
        ...
}
```

11. What is the “t” here and what is it used for

```
Public <t> void bar(t x){
        …
}
```

12. Follow-up question: give an example where using type parameters is better than a wild card.

13. What is the difference between the 2 code snippets below

```
Try{
        Bufferedreader br = files.newbufferedreader(…);
        Sout(br.readline());
} catch (ioexception e){
        E.printstacktrace();
} finally {
        Br.close();
}

Try(bufferedreader br = files.newbufferedreader(…)){
        Sout(br.readline());
} catch (ioexception e){
        E.printstacktrace();
}
```

14. Explain this

```
List<string> strings = arrays.aslist("a", "bb", "c", "ddd", "ee");

Strings.stream()
        .filter(s -> s.length() > 1)
        .map(string::touppercase)
        .foreach(system.out::println)
        .collector.;
```

B. SQL

Your database tables:
Products : product_id, description, ...
Sales : product_id, customer_id, ...

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15. How do you avoid duplicate records in following select

```
SELECT product_id, customer_id FROM sales
```

16. How to list the products that have been sold at least once.

17. How to list the products that have never been sold.

18. What is the result on “?”

Select count(*) from products => 10
Select count(*) from products where description like 'a%' => 5
Select count(*) from products where description not like 'a%' => ?

19. Difference between join and left outer join

20. Difference between drop table and truncate table