Java Technical Review - Iteration

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Introduction to Iteration

What is iteration?

- The repetition of a process

Why is it important?

- Redundancy is inefficient

What is non-structural iteration?

- Iteration with no data structure

What is structural iteration?

- Iteration with a data structure

Some code examples

Non-structural Iteration

```
public static void example1()
{
    for(int i = 0; i < 5; i++)
    {
        for(int j = 0; j < 5; j++)
        {
            System.out.println("#");
        }
        System.out.print("\n");
    }
}
```

Structural Iteration

```
public static void example2()
{
    List<Integer> a = new ArrayList<Integer>();
    a.add(1);
    a.add(2);
    a.add(3);

    for(Iterator i = a.iterator(); i.hasNext())
    {
        System.out.println(i.next());
    }
}
```

Quiz

```
public static int f(int a)
{
    if(a <= 0)
        return 1;
    else
        return a + f(a - 1);
}
```

What type of iteration is this and what would f(5) return?

    a.   Structured iteration, 120
    b.   Non-structured iteration, 16
    c.   Structured iteration, 16
    d.   Non-structured iteration, 120