Section 1:

Snippet 1:

```
public class InfiniteForLoop {
    public static void main(String[] args) {
        for (int i = 0; i < 10; i--) {
            System.out.println(i);
        }
    }
}
```

Error :-

---------> The loop declaration is wrong. It is decrementing but it should be incrementing in order to work correctly.

Corrected Code Snippet :-

```
public class InfiniteForLoop {
    public static void main(String[] args) {
        for (int i = 0; i < 10; i++) {
            System.out.println(i);
        }
```

```
    }
}
```

Snippet 2:

```
public class IncorrectWhileCondition {
    public static void main(String[] args) {
        int count = 5;
        while (count = 0) {
            System.out.println(count);
            count--;
        }
    }
}
```

Error:-

---------> The loop declaration is wrong. 'count' should be specified properly inside the loop.

Corrected Code Snippet:-

```
public class IncorrectWhileCondition {
    public static void main(String[] args) {
```

```
        int count = 5;
        while (count > 0) {
            System.out.println(count);
            count--;
        }
    }
}
```

Snippet 3:

```
public class DoWhileIncorrectCondition {
    public static void main(String[] args) {
        int num = 0;
        do {
            System.out.println(num);
            num++;
        } while (num > 0);



    }
}
```

Error:-

---------> The loop declaration is wrong. It will execute infinitely.

Corrected Code Snippet:-

```
public class DoWhileCorrectCondition {
    public static void main(String[] args) {
        int num = 0;
        do {
            System.out.println(num);
            num++;
        } while (num < 5);
    }
}
```

Snippet 4:

```
public class OffByOneErrorForLoop {
    public static void main(String[] args) {
        for (int i = 1; i <= 10; i++) {
            System.out.println(i);
        }
        // Expected: 10 iterations with numbers 1 to 10
        // Actual: Prints numbers 1 to 10, but the task expected only 1 to
9
    }
```

```
}
```

Error:-

---------> The condition is wrong. Range for I must be less than 10 .

Corrected Code Snippet:-

```
public class CorrectForLoop {
	public static void main(String[] args) {
		for (int i = 1; i < 10; i++) {
			System.out.println(i);
		}

	}
}
```

Snippet 5:

```
public class WrongInitializationForLoop {
	public static void main(String[] args) {
		for (int i = 10; i >= 0; i++) {
			System.out.println(i);
		}
```

```
    }
}
```

Error:-

---------> The loop declaration is wrong. It is decrementing but it should be incrementing in order to work correctly.

Corrected Code Snippet:-

```
public class WrongInitializationForLoop {
    public static void main(String[] args) {
        for (int i = 10; i >= 0; i--) {
            System.out.println(i);
        }
    }
}
```

Snippet 6:

```
public class MisplacedForLoopBody {
    public static void main(String[] args) {
        for (int i = 0; i < 5; i++)
            System.out.println(i);
```

```
            System.out.println("Done");
    }
}
```

Error:-

---------> The loop declaration is wrong. Parenthesis is missing.

Corrected Code Snippet:-

```
public class MisplacedForLoopBody {
    public static void main(String[] args) {
        for (int i = 0; i < 5; i++) {
            System.out.println(i);
      }
            System.out.println("Done");
    }
}
```

Snippet 7:

```
public class UninitializedWhileLoop {
    public static void main(String[] args) {
        int count;
```

```
        while (count < 10) {
            System.out.println(count);
            count++;
        }
    }
}
```

Error:-

---------> The 'count' variable value should be declared in order to use it.

Corrected Code Snippet:-

```
public class UninitializedWhileLoop {
    public static void main(String[] args) {
        int count = 0;


        while (count < 10) {
            System.out.println(count);
```

```
            count++;
        }
    }
}
```

Snippet 8:

```
public class OffByOneDoWhileLoop {
    public static void main(String[] args) {
        int num = 1;
        do {
            System.out.println(num);
            num--;
        } while (num > 0);
    }
}
```

Error:-

---------> The 'num' value is not properly defined. There is no integer in between 0 and 1.

Corrected Code Snippet:-

```
public class OffByOneDoWhileLoop {
    public static void main(String[] args) {
        int num = 5;
        do {
            System.out.println(num);
            num--;
        } while (num > 0);
    }
}
```

Snippet 9:

```
public class InfiniteForLoopUpdate {
    public static void main(String[] args) {
        for (int i = 0; i < 5; i += 2) {
            System.out.println(i);
        }
    }
}
```

Error:-

---------> The loop will close at condition less than 5. To have it run properly one need to use 'increment by 2' condition inside loop.

Corrected Code Snippet:-

```
public class InfiniteForLoopUpdate {
    public static void main(String[] args) {
        for (int i = 0; i < 5; ) {
            System.out.println(i);
            i += 2;
        }
    }
}
```

Snippet 10:

```
public class IncorrectWhileLoopControl {
    public static void main(String[] args) {
        int num = 10;
        while (num = 10) {
            System.out.println(num);
            num--;
        }
    }
}
```

Error:-

---------> The loop condition is not right. The while loop should have comparison condition.

Corrected Code Snippet:-

```
public class CorrectWhileLoopControl {
    public static void main(String[] args) {
        int num = 10;
        while (num > 0) {
            System.out.println(num);
            num--;
        }
    }
}
```

Snippet 11:

```
public class IncorrectLoopUpdate {
    public static void main(String[] args) {
        int i = 0;
        while (i < 5) {
            System.out.println(i);
            i += 2; // Error: This may cause unexpected results in output
```

```
        }
    }
}
```

Error:-

---------> The loop will work but will give output as 0 2 4. In order to have a proper sequence we need to increment i by 1.

Corrected Code Snippet:-

```
public class CorrectLoopUpdate {
    public static void main(String[] args) {
        int i = 0;
        while (i < 5) {
            System.out.println(i);
            i++;
        }
    }
}
```

Snippet 12:

```
public class LoopVariableScope {
```

```
    public static void main(String[] args) {
        for (int i = 0; i < 5; i++) {
            int x = i * 2;
        }
        System.out.println(x); // Error: 'x' is not accessible here
    }
}
```

Error:-

---------> The scope of 'x' variable is within the for loop. Hence it causes compilation error. In order to access it we need to declare it outside the for loop.

Corrected Code Snippet:-

```
public class CorrectLoopVariableScope {
    public static void main(String[] args) {
        int x; // Declare x outside the loop
        for (int i = 0; i < 5; i++) {
            x = i * 2;
        }
        System.out.println(x);
    }
}
```