

02332 COMPILERTEKNIK (E10)

Assignment 2

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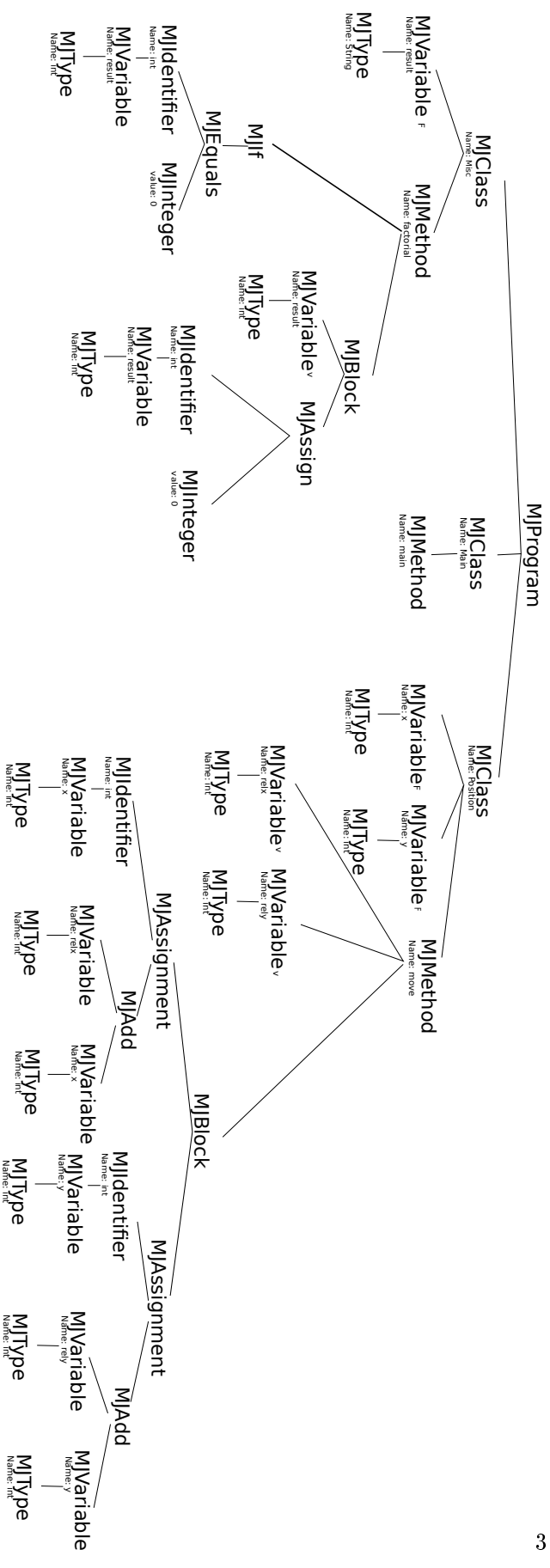
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1. Mark keywords and tokens

```
class Main{
    public static void main( String[] args) {System.out.println( 42 ); }
}
class Position {
    int x;
    int y;
    public void move( int relx, int rely) {
        x = x + relx;
        y = y + rely;
        return;
    }
}
class Misc {
    String result;
    public int factorial (int x) {
        int result;
        result = 0;
        if (x == 0) {
            result = 1;
        } else {
            if (x == 1) {
                result = 1;
            } else {
                int t;
                t = factorial( x-1 );
                result = x*t;
            }
        }
        return result;
    }
}
=Keywords
=Tokens
```

2. IR tree

See next page



3. Fields and variables

See 2.

4. Class table

Class name	Fields (type and name)	Methods(return type, name, arguments)
Main		void, main, args
Position	int x, int y	void, move,relx, rely
Misc	String result	int, factorial, x

5. Node types

See 2.

6. Find 9 (10) errors

1. Line 2: Static keyword is missing, it is mandatory according tp the miniJava specification
2. Line 10: Move is missing a return type
3. After line 14: Missing return
4. Line 19: Missing lhs argument.
5. Line 21: Missing lhs argument.
6. Line 24: Missing lhs argument.
7. Line 26: Missing lhs argument.
8. Line 27: Missing semicolon.
9. Line 27: Attempt to assign an int to a String.
10. Line 30: Return void and not int.

```
1 class Main {
2     public void main(String[] args) {
3         System.out.println(42);
4     }
5 }
6
7 class Position {
8     int x;
9     int y;
10    public move(int relx, int rely) {
11        x = x + relx;
12        y = y + rely;
13    }
14 }
15
16 class Misc {
17     String result = "";
18     public int factorial(int x) {
19         = 0;
20         if (x == 0) {
21             = 1;
```

```

22         } else {
23             if (x == 1) {
24                 = 1;
25             } else {
26                 = factorial( -1 );
27                 result = x *
28             }
29         }
30     return;
31 }
32 }

```