

# [LANGUAGE SPECIFICATION IN JAVA]

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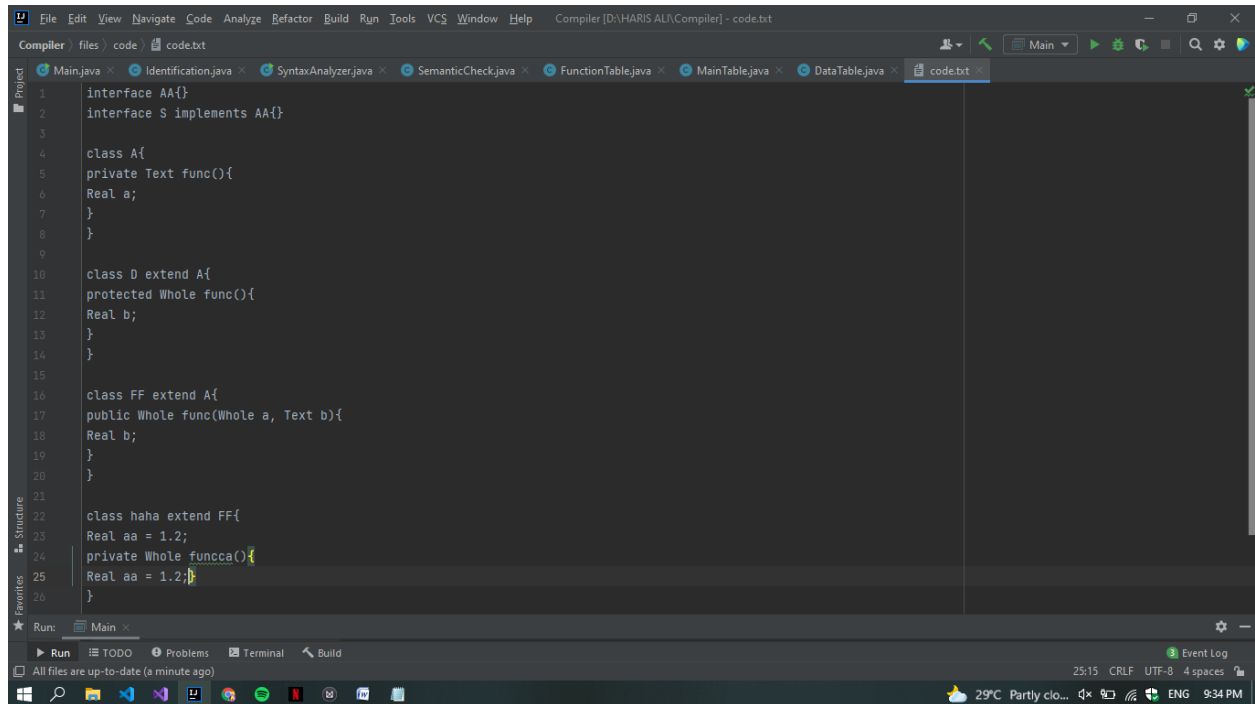
UNIVERSITY OF  
**KARACHI**

COMPILER CONSTRUCTION 501  
SUBMITTED MISS ARISHA

GROUP MEMBERS

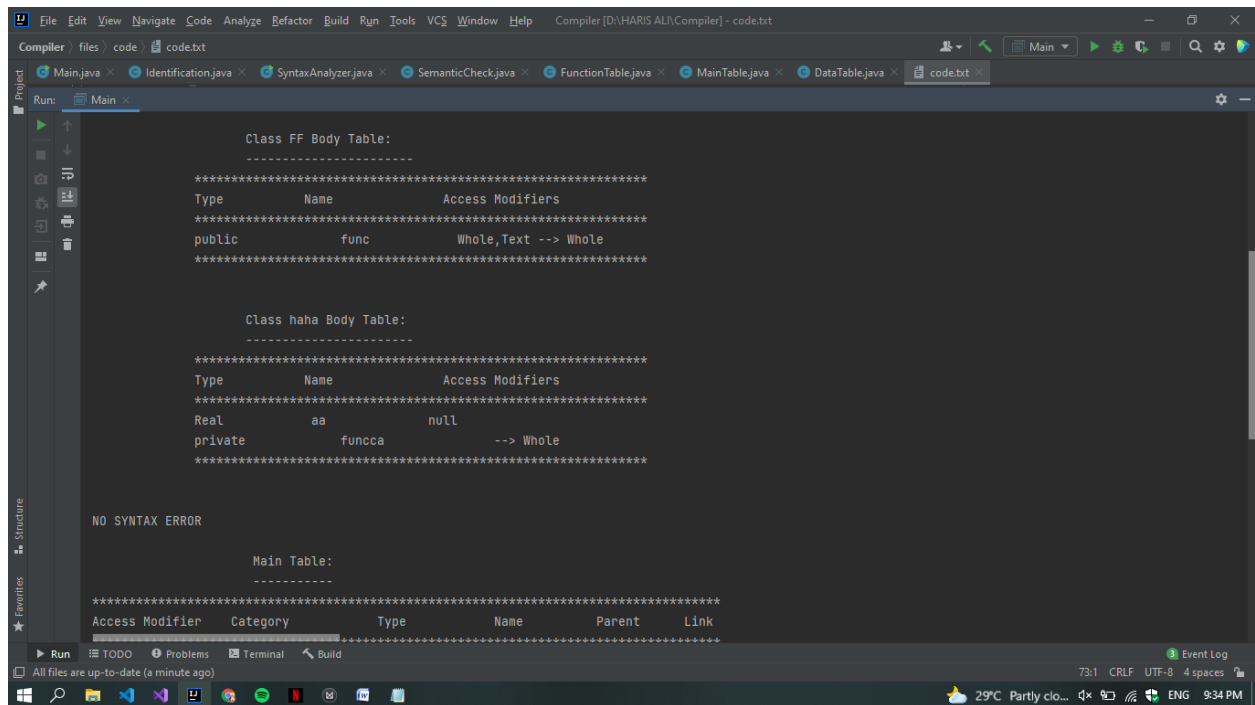
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# Question 01:-



The screenshot shows an IDE window titled "Compiler [D:\HARIS ALI\Compiler] - code.txt". The code defines an interface AA, an interface S that implements AA, and three classes: A, D, and FF. Class A has a private method func() that returns a Text object. Class D extends A and has a protected method func() that returns a Whole object. Class FF extends A and has a public method func() that returns a Whole object. Class haha extends FF and has a private method func() that returns a Whole object. The code is as follows:

```
1 interface AA{
2 interface S implements AA{}
3
4 class A{
5 private Text func(){
6 Real a;
7 }
8 }
9
10 class D extend A{
11 protected Whole func(){
12 Real b;
13 }
14 }
15
16 class FF extend A{
17 public Whole func(Whole a, Text b){
18 Real b;
19 }
20 }
21
22 class haha extend FF{
23 Real aa = 1.2;
24 private Whole func(){}
25 Real aa = 1.2;
26 }
```



The screenshot shows the same IDE window, but now displaying the output of the code. The output is a table showing the class structure and the results of the compilation. The output is as follows:

```
Class FF Body Table:
-----
*****
Type      Name      Access Modifiers
*****
public    func      Whole,Text --> Whole
*****

Class haha Body Table:
-----
*****
Type      Name      Access Modifiers
*****
Real      aa      null
private   func    --> Whole
*****

NO SYNTAX ERROR

Main Table:
-----
*****
Access Modifier  Category      Type      Name      Parent      Link
*****
```

```
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help Compiler [D:\HARIS ALI\Compiler] - code.txt
Compiler files code code.txt
Main.java SyntaxAnalyzer.java SemanticCheck.java FunctionTable.java MainTable.java DataTable.java code.txt
Run Main
"C:\Program Files\Java\jdk-13.0.2\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2021.1\lib\idea_rt.jar=1104:C:\Program
[INTERFACE, IDENTIFIER, C_B_0, C_B_C, INTERFACE, IDENTIFIER, IMPLEMENTS, IDENTIFIER, C_B_0, C_B_C, CLASS, IDENTIFIER, C_B_0, AM, DATATYPES, IDENTIFIER, R_B_0,
Class A Body Table:
-----
*****
Type      Name      Access Modifiers
*****
private   func      --> Text
*****
Class D Body Table:
-----
*****
Type      Name      Access Modifiers
*****
protected func      --> Whole
*****
Class FF Body Table:
-----
*****
Type      Name      Access Modifiers
*****
public    func      Whole,Text --> Whole
*****
Run TODO Problems Terminal Build
All files are up-to-date (a minute ago)
73:1 CRLF UTF-8 4 spaces
29°C Partly clo... ENG 9:34 PM
```

```
File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help Compiler [D:\HARIS ALI\Compiler] - code.txt
Compiler files code code.txt
Main.java SyntaxAnalyzer.java SemanticCheck.java FunctionTable.java MainTable.java DataTable.java code.txt
Run Main
Main table:
-----
*****
Access Modifier Category Type Name Parent Link
*****
null null interface AA null
null null interface S AA
null General class A null
null General class D A
null General class FF A
null General class haha FF
*****
Function Table:
-----
*****
Type Name Scope
*****
Real a 2
Real b 4
Whole a 6
Text b 6
Real b 6
Real aa 8
*****
Run TODO Problems Terminal Build
All files are up-to-date (2 minutes ago)
57:37 CRLF UTF-8 4 spaces
29°C Partly clo... ENG 9:35 PM
```

