

Group 18

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Part 1

```
program fred(output);
```

```
begin
```

```
  writeln('Hi, this is Fred');
```

```
end.
```

```
od -x program1.pas
```

Part 2

```
fpc -a -Tlinux program1.pas
```

Part 3

Program -> ProgramHeading ";" Block "."

ProgramHeading -> "program" ProgramIdentifier

Block -> VariableDeclarationPart ProcedureAndFunctionDeclarationPart StatementPart

VariableDeclarationPart -> "var" VariableDeclaration ";" VariableDeclarationTail

VariableDeclarationTail -> VariableDeclaration ";" VariableDeclarationTail

VariableDeclaration -> Identifierlist ":" Type

Type -> "Integer" | "Float" | "String" | "Boolean"

ProcedureAndFunctionDeclarationPart -> ProcedureDeclaration

ProcedureAndFunctionDeclarationPart | FunctionDeclaration

ProcedureAndFunctionDeclarationPart

FunctionDeclaration -> FunctionHeading ";" Block ";"

ProcedureHeading -> "procedure" procedureIdentifier OptionalFormalParameterList

FunctionHeading -> "function" functionIdentifier OptionalFormalParameterList ":" Type

OptionalFormalParameterList -> "(" FormalParameterSection FormalParameterSectionTail
")"

Part 4

float_liter regular expression:

digit digit* (E(+|-)digit digit*)|. digit digit*(E(+|-)digit digit*)| ϵ

identifier regular expression:

(letter|_)((letter|digit)|_[^_])((letter|digit)|_[^_])*(letter|digit)

whitespace

(0xA|0xB|0xC|0xD|0x20|0x85|0xA0)+

Note: We weren't sure how else to show a Regular Expression for whitespace characters so we chose to use the hex values of each whitespace ASCII character, this would be the way we'd check for these characters in a file as well.

FSA

