

# Specification Sheet for the Final Phase of the Semester Project

**PROJECT TASK SHEET:**

The *Intermediate Code*, which your compiler can already generate (as per previous specification sheet) is *already very similar to the form which we want to finally achieve* in order to make everything executable.

- Your final output file will contain executable code in the ancient BASIC Syntax, which you can see at >>> <https://en.wikipedia.org/wiki/BASIC>
- To transform the Abstract Intermediate Code into executable BASIC, only the following few steps of post-processing are needed:
  - Consecutive **Line-Numbers** need to be generated for each line of the un-numbered Intermediate Program. (By the way, It is "traditional" BASIC "style" to generate the Line-Numbers in steps of 10, 20, 30, etc..., although normal numbering 1,2,3, etc..., is also possible). *Thereafter:*
  - Wherever **REM Lx** is a Label-Line in the *un-numbered Intermediate Code*, and wherever **GOTO Lx** is a jump command to that label **Lx** in the *un-numbered Intermediate Code*, and wherever **LineNumber REM Lx** is the same Label-Line in the **numbered** Code, the command **GOTO Lx** from Intermediate Code gets replaced by **GOTO LineNumber** in the executable BASIC Code.
  - In a similar manner, **THEN Lx** in the un-numbered Intermediate Code gets replaced by **THEN LineNumber** in the executable BASIC Code.

The following **Example** provides some **illustration**:

Un-numbered Intermediate Code	Line-numbered executable BASIC Code
<i>some_command</i> <b>REM L0</b> IF V30=V31 <b>THEN L1</b> <i>some_other_command</i> <b>GOTO L0</b> <b>REM L1</b> <i>yet_another_command</i>	<b>130</b> <i>some_command</i> <b>140 REM L0</b> <b>150</b> IF V30=V31 <b>THEN 180</b> <b>160</b> <i>some_other_command</i> <b>170 GOTO 140</b> <b>180 REM L1</b> <b>190</b> <i>yet_another_command</i>

On the **Internet** you can find many **Online-BASIC-Emulators** which enable you to really **RUN a BASIC Program** which your successful Semester-Project-Compiler has automatically generated from a correct **SPL** Input Program : **The Feeling of Success is GREAT** :)

- And now : **HAPPY CODING** :)