

# CS305 Homework 02

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# Context Free Grammer for CSML

The set T, the terminal symbols, and the set V-T ,the non-terminal symbols have been provided in the homework file.

## Rules of the Grammer:

$$\langle prog \rangle \rightarrow \langle elementlist \rangle \mid e$$
$$\langle elementList \rangle \rightarrow \langle element \rangle \langle elementList \rangle \\ \mid \langle element \rangle$$
$$\langle element \rangle \rightarrow \langle beginCourse \rangle \langle classList \rangle \langle endCourse \rangle \\ \mid \langle beginConstraint \rangle \langle itemList \rangle \langle endConstraint \rangle$$
$$\langle beginCourse \rangle \rightarrow tOPEN \ tCOURSE \ \langle courseAttrList \rangle \ tCLOSE$$
$$\langle courseAttrList \rangle \rightarrow \langle courseAttr \rangle \langle courseAttrList \rangle \\ \mid \langle courseAttr \rangle$$
$$\langle courseAttr \rangle \rightarrow tCODE \ tSTRING \\ \mid tNAME \ tSTRING \\ \mid tTYPE \ tSTRING$$
$$\langle endCourse \rangle \rightarrow tEND \ tCOURSE \ tCLOSE$$
$$\langle classList \rangle \rightarrow \langle class \rangle \langle classList \rangle \\ \mid \langle class \rangle$$
$$\langle class \rangle \rightarrow \langle beginClass \rangle \langle meetingList \rangle \langle endClass \rangle$$
$$\langle beginClass \rangle \rightarrow tOPEN \ tCLASS \ \langle classAttrList \rangle \ tCLOSE$$
$$\langle classAttrList \rangle \rightarrow \langle classAttr \rangle \langle classAttrList \rangle \\ \mid \langle classAttr \rangle$$

$\langle classAttr \rangle \rightarrow tSECTION\ tSTRING$   
 $\quad \quad \quad | \ tINSTRUCTOR\ tSTRING$   
 $\quad \quad \quad | \ tCRN\ tNUM$   
 $\quad \quad \quad | \ tCAPACITY\ tNUM$

$\langle endClass \rangle \rightarrow tEND\ tCLASS\ tCLOSE$

$\langle meetingList \rangle \rightarrow \langle meeting \rangle \langle meetingList \rangle$   
 $\quad \quad \quad | \ \langle meeting \rangle$

$\langle meeting \rangle \rightarrow \langle beginMeeting \rangle \langle meetingAttrList \rangle \langle endMeeting \rangle$

$\langle beginMeeting \rangle \rightarrow tOPEN\ tMEETING$

$\langle endMeeting \rangle \rightarrow tSELF$

$\langle meetingAttrList \rangle \rightarrow \langle meetingAttr \rangle \langle meetingAttrList \rangle$   
 $\quad \quad \quad | \ \langle meetingAttr \rangle$

$\langle meetingAttr \rangle \rightarrow tSTART\ tTIME$   
 $\quad \quad \quad | \ tEND\_A\ tTIME$   
 $\quad \quad \quad | \ tDAY\ \langle day \rangle$

$\langle beginConstraint \rangle \rightarrow tOPEN\ tCONSTRAINT\ tCLOSE$

$\langle endConstraint \rangle \rightarrow tEND\ tCONSTRAINT\ tCLOSE$

$\langle itemList \rangle \rightarrow \langle item \rangle \langle itemList \rangle$   
 $\quad \quad \quad | \ \langle item \rangle$

$\langle item \rangle \rightarrow \langle beginItem \rangle \langle itemAttr \rangle \langle endItem \rangle$

$\langle beginItem \rangle \rightarrow tOPEN\ tITEM$   
 $\langle endItem \rangle \rightarrow tSELF$

$\langle itemAttr \rangle \rightarrow tCODE\ tSTRING$   
 $\quad \quad \quad | \ tCRN\ tNUM$

$$\langle day \rangle \rightarrow tMON \mid tTUE \mid tWED \mid tTHU \mid tFRI$$