Steps for drawing a device from the user database

1. Given the user input, the llm will find the parameters of the device in the SQL database
2. From the parameters, the code will check whether the parameters are the same as the default values in GDSfactory, if so, return to step 1. (Note that right now the code only checks whether all of the parameters are the default values, which leaves room for mistakes because if the llm generates all other parameters correctly except for one and that parameter is the default value, it will still pass the test)
3. The llm will generate the code that draws it
4. Check whether the numbers in the code match the numbers from the SQL database in step 1, if not, return to step 1
5. If the user specifies a certain parameter, the llm will modify the code according to the user input
6. there will be another checker that parses the parameter specified in the user query, and that number will be compared with the number from the llm-generated code

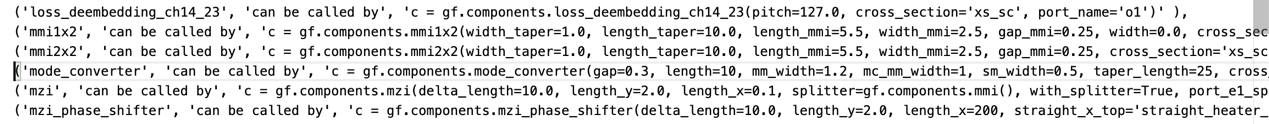
**note**: one limitation to this checker is that the user has to know the exact name for the parameter in gdsfactory, for example, if users want to use a different number for the gap of a mmi 1x2, they would have to specify "gap\_mmi=..." in the user input because gap\_mmi is the correct parameter name in gdsfactory, any other case would fail

1. Execute the code, if failed, return to step 1,

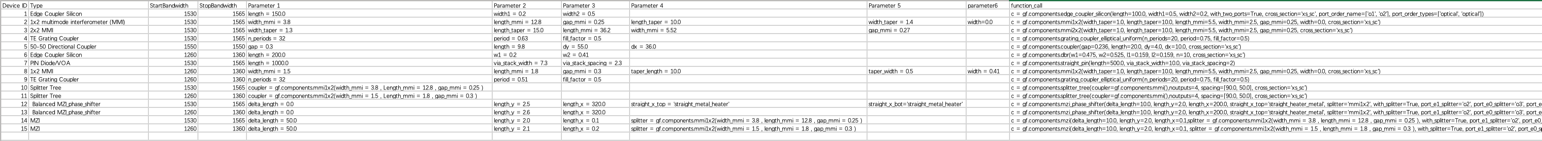
The full code is in this file: llama\_index\_sql\_vector\_database.ipynb

Requirements to run the code properly:

1. Python 3.10 or Python 3.11 to support GDSfactory
2. a replicate api key to run the models: <https://replicate.com/>
3. A folder of context information of GDSfactory



1. A .db SQL database



Note that to run the code correctly, the database has to be in the format of the above one, each entry represents a device and each column is a parameter of that device. The last column should be the default function in GDSfactory and the operating wavelength range has to be provided in the format of StartBandwidth ~ StopBandwidth in two separate columns

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图形用户界面, 应用程序, 表格

描述已自动生成