1. Parameters and parts of scripts, which must or can be modified.

<table>
<tr><th colspan="2">SAS</th><th>Python</th></tr>
<tr><td>all_contents</td><td>• Path to change (10th line), we indicate path which is the location of downloaded files “SAS_CS”. Please do not forget to end the path with backslash “\”.</td><td rowspan="5">• target_name='default12' – depending on the model, we have choice of three targets “default12”, “default_cross12” and ‘’cross_response”
• ncategories_int=4
• minimum_share_int=0.03
• minimum_share_unique=0.03
• ncategories_nom=4
• category_order=False – for risk models =True – for respose models
• df = pd.read_sas (‘we put path to the dataset abt_app.sas7bdat’)
• df['product']=='css' – depending on the product, which we use for modelling (‘css’ or ‘ins’). In case both products are used for modelling, we can remove this obligation.
• vars=[var for var in list(df) if var[0:3].lower() in ['app','act','agr','ags']] – this line should NOT be commented if we would like to have all types on vairables, including aggregates. Remember to commet the line above given one.
• test_size=0.4 – there is possibility to change proportion of train and test samples.
• number_vars=12 –number of variables taken into account.
number_features=6 - number of varianles in the model.
• (Gini_vars[gini_train]>0.05)
& (Gini_vars[delta_gini]<0.2)
& (Gini_vars[PSI_tar]<0.1)
& (Gini_vars[PSI]<0.1) – we change these values in case any variables (or few) pass the thresholds.
e_betas']==0)
& (Model_list['max_pvalue']<=0.01)
& (Model_list['max_vif']<=3.0) – we change these values in case any model passes the thresholds.
_all['default12'] == 1.0] – target nam eto n the model we are developing</td></tr>
<tr><td>calibration</td><td>• Path to change (9th line), we indicate path which is the location of downloaded files “SAS_CS”. Please do not forget to end the path with backslash “\”.
• For each Probability (pd_ins, pd_css, pd_cross_css, pr) we put our own parameters (numbers)
Example: <code>pr=1/(1+exp(-(-0.035007455*response_score+10.492092793)))</code>
• For each decision rule we put our cut-off point (numbers).
Example: %let pd_css=0.2724;</td></tr>
<tr><td>main</td><td>• Path to change (8th line), we indicate path which is the location of downloaded files “SAS_CS”. Please do not forget to end the path with backslash “\”.
• target = - depending on the model, we have choice of three targets “default12”, “default_cross12” and ‘’cross_response”.
• order_tar – ascending by default for risk models, for response models we should change for ‘descending’.
• prop=0.5 – orandomly cut sample, in order to reduce time during calculation, while modelling, whole sample should be taken.</td></tr>
<tr><td>train_valid</td><td>• We can change proportion of the train and valid samples -> “if ranuni(1)<0.4 then output”.
• When final modeling, please uncomment part regarding aggregates -> <i>‘:agr :ags’.</i></td></tr>
<tr><td>expert_models</td><td>• If using “expert_models” method, in the first data step, please put chosen variables -> “VariablesInModel=’…’ “ and, accordingly, the number of above vatiables - > “NumberOfVariables=”.</td><td>ASR_step_by_step</td></tr>
</table>

variables_correction	• In this script we can manually correct binning, buckets, split points -> below "**cards**;" statement we put new(corrected) buckets of given variable. It is recommended, especially, when risk over time is not monotonic or split points are hard explainable from the business point of view.		ı, we run all *'!pip install'* to install all needed
score_selection	• At the very beginning, we can change number of selected models with n-predictors- > o %let start= minimum number of predictors in the model o %let stop=maximum number of predictors in the model o %let best= number of selected models from each above group. Example: %let start=7, %let stop=8, %let best=5 -> it chooses 5 best models with 7 predictors and 5 best models with 8 predictors.		
boostrap_validation	• If we use boostrap_validation for the determination of confidence intervals, we can change (recommended) number of iterations-> "%let il_seed= ".		

2. Tips for SAS:

- Turn on lines numbering: Tools -> Options -> Enhanced Editor -> mark "Show line numbers"
- 'Ctrl + ?' – comment , 'Ctrl + Shift + ?' – remove comment mode

3. Tips for Python – Jupyter Notebook

- „Ctrl + Enter" – run code in active window
- „escape" – deactivate given window
- „Enter" – activate given window
- 'dd' – delete given window (must be inactive)
- 'a' – create new window, above given one, given window must be inactive
- 'b' – create new window, below given one, given window must be inactive