

CONTEXT

CONTEXT User Module
Interval Calendar

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December 30, 2022

Interval Calendar

```
1 \startmodule[intervalcalendar]
2 \writestatus{loading}{ConTeXt User Module / Interval Calendar}
```

Interval Calendar

Introduction

After announcing a presentation for the 16th CONTeXt-Meeting in Dreifelden, Germany, over a new version of the PocketDiary module, Taco Hoekwater asked whether the PocketDiary module might also be able to produce lists with calendar-dates in intervals like ‘weekly’, ‘two weekly’ or ‘monthly’ for the purpose of taking notes for checks on a regular base. – The lists should be configurable for the length of the list, the number of columns and the possibility to assign an individual column-header. – Quickly it appeared, that the use of the PocketDiary module is not necessary. In order to be able to do math on dates it is the easiest to convert a date to a timestamp in seconds or what is used by the operating-system. – Due to the fact that there are repeating calculations done it is easiest to keep as much as possible at the lua end. Therefore the out-put is prepared as a CONTeXt-LUA-document (cld).

Interval Calendar

One Mode for Each List

The module can be used for the production of different lists. For each list we define a mode.

```
3 \definemode[weekly][keep]
4 \definemode[twoweekly][keep]
5 \definemode[monthly][keep]
```

None of the modes are activated.

Interval Calendar

General Setups

```
6  \setupbodyfont[dejavu,ss,12pt]
7  \setuppagenumbering[location=]
8  \setuppapersize[A4,portrait][A4,portrait]
9  \setuplayout
10   [topspace=20mm,
11    backspace=12mm,
12    header=10mm,
13    footer=2\bodyfontsize,
14    height=middle,
15    width=middle]
16 \setupfootertexts
17  [\jobname .pdf]
18  [\pagenumber\ / \ totalnumberofpages]
```

Interval Calendar

LUA-Code

```

19 \startluacode
20     thirddata           = thirddata      or { }
21     thirddata.calendar = { }
22     local calendar      = thirddata.calendar
23
24     local report = logs.reporter("Interval Checks")
25
26     local interval_dates = {}
27
28     function calendar.interval_checks(startdate,stopdate,cols,intval)
29
30         local startdate_string =startdate
31         local stopdate_string =stopdate
32         local columns=cols
33         local intervaldays = intval
34
35         local year,month,day = calendar.date(startdate_string)
36         local start_time_stamp = os.time({year=year,month=month,day=day})
37
38         --report("Starttimestamp: %s", start_time_stamp)
39
40         local year,month,day = calendar.date(stopdate_string)
41         local end_time_stamp = os.time{year=year,month=month,day=day}
42
43         local interval = intervaldays * 24 * 60 * 60
44
45         for i = start_time_stamp, end_time_stamp, interval do
46             local interval_date = os.date("%d-%m-%Y",i)
47             table.insert(interval_dates,interval_date)
48             report("%s",interval_date)
49         end
50
51         calendar.print_interval_checks(columns)
52     end
53
54     function calendar.print_interval_checks(cols)
55
56         local columns = cols
57
58         context.bTABLE({setups="table:interval_check"})
59         context.bTABLEhead()
60         context.bTR()
61         for i = 1,columns do
62             context.bTH()
63             context.labeltext("c"..i)
64             context.eTH()
65         end
66         context.eTR()
67         context.eTABLEhead()
68         context.bTABLEbody()
69         for k,v in ipairs(interval_dates) do
70             context.bTD()
71             context.labeltext(v)
72             context.eTD()
73         end
74     end
75
76     function calendar.print_table()
77
78         local columns = 1
79
80         context.bTABLE({setups="table:table"})
81         context.bTABLEhead()
82         context.bTR()
83         for i = 1,columns do
84             context.bTH()
85             context.labeltext("c"..i)
86             context.eTH()
87         end
88         context.eTR()
89         context.eTABLEhead()
90         context.bTABLEbody()
91         for k,v in ipairs(table) do
92             context.bTD()
93             context.labeltext(v)
94             context.eTD()
95         end
96     end
97
98     function calendar.print_header()
99
100        local columns = 1
101
102        context.bTABLE({setups="table:header"})
103        context.bTABLEhead()
104        context.bTR()
105        for i = 1,columns do
106            context.bTH()
107            context.labeltext("c"..i)
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109        end
110        context.eTR()
111        context.eTABLEhead()
112        context.bTABLEbody()
113        for k,v in ipairs(header) do
114            context.bTD()
115            context.labeltext(v)
116            context.eTD()
117        end
118    end
119
120    function calendar.print_footer()
121
122        local columns = 1
123
124        context.bTABLE({setups="table:footer"})
125        context.bTABLEhead()
126        context.bTR()
127        for i = 1,columns do
128            context.bTH()
129            context.labeltext("c"..i)
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206    end
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209
210        local columns = 1
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212        context.bTABLE({setups="table:footer"})
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861        for k,v in ipairs(header) do
862            context.bTD()
863            context.labeltext(v)
864            context.eTD()
865        end
866    end
867
868    function calendar.print_footer()
869
870        local columns = 1
871
872        context.bTABLE({setups="table:footer"})
873        context.bTABLEhead()
874        context.bTR()
875        for i = 1,columns do
876            context.bTH()
877            context.labeltext("c"..i)
878            context.eTH()
879        end
880        context.eTR()
881        context.eTABLEhead()
882        context.bTABLEbody()
883        for k,v in ipairs(header) do
884            context.bTD()
885            context.labeltext(v)
886            context.eTD()
887        end
888    end
889
890    function calendar.print_header()
891
892        local columns = 1
893
894        context.bTABLE({setups="table:header"})
895        context.bTABLEhead()
896        context.bTR()
897        for i = 1,columns do
898            context.bTH()
899            context.labeltext("c"..i)
900            context.eTH()
901        end
902        context.eTR()
903        context.eTABLEhead()
904        context.bTABLEbody()
905        for k,v in ipairs(header) do
906            context.bTD()
907            context.labeltext(v)
908            context.eTD()
909        end
910    end
911
912    function calendar.print_footer()
913
914        local columns = 1
915
916        context.bTABLE({setups="table:footer"})
917        context.bTABLEhead()
918        context.bTR()
919        for i = 1,columns do
920            context.bTH()
921            context.labeltext("c"..i)
922            context.eTH()
923        end
924        context.eTR()
925        context.eTABLEhead()
926        context.bTABLEbody()
927        for k,v in ipairs(header) do
928            context.bTD()
929            context.labeltext(v)
930            context.eTD()
931        end
932    end
933
934    function calendar.print_header()
935
936        local columns = 1
937
938        context.bTABLE({setups="table:header"})
939        context.bTABLEhead()
940        context.bTR()
941        for i = 1,columns do
942            context.bTH()
943            context.labeltext("c"..i)
944            context.eTH()
945        end
946        context.eTR()
947        context.eTABLEhead()
948        context.bTABLEbody()
949        for k,v in ipairs(header) do
950            context.bTD()
951            context.labeltext(v)
952            context.eTD()
953        end
954    end
955
956    function calendar.print_footer()
957
958        local columns = 1
959
960        context.bTABLE({setups="table:footer"})
961        context.bTABLEhead()
962        context.bTR()
963        for i = 1,columns do
964            context.bTH()
965            context.labeltext("c"..i)
966            context.eTH()
967        end
968        context.eTR()
969        context.eTABLEhead()
970        context.bTABLEbody()
971        for k,v in ipairs(header) do
972            context.bTD()
973            context.labeltext(v)
974            context.eTD()
975        end
976    end
977
978    function calendar.print_header()
979
980        local columns = 1
981
982        context.bTABLE({setups="table:header"})
983        context.bTABLEhead()
984        context.bTR()
985        for i = 1,columns do
986            context.bTH()
987            context.labeltext("c"..i)
988            context.eTH()
989        end
990        context.eTR()
991        context.eTABLEhead()
992        context.bTABLEbody()
993        for k,v in ipairs(header) do
994            context.bTD()
995            context.labeltext(v)
996            context.eTD()
997        end
998    end
999
1000   function calendar.print_footer()
1001
1002        local columns = 1
1003
1004        context.bTABLE({setups="table:footer"})
1005        context.bTABLEhead()
1006        context.bTR()
1007        for i = 1,columns do
1008            context.bTH()
1009            context.labeltext("c"..i)
1010            context.eTH()
1011        end
1012        context.eTR()
1013        context.eTABLEhead()
1014        context.bTABLEbody()
1015        for k,v in ipairs(header) do
1016            context.bTD()
1017            context.labeltext(v)
1018            context.eTD()
1019        end
1020    end
1021
1022    function calendar.print_header()
1023
1024        local columns = 1
1025
1026        context.bTABLE({setups="table:header"})
1027        context.bTABLEhead()
1028        context.bTR()
1029        for i = 1,columns do
1030            context.bTH()
1031            context.labeltext("c"..i)
1032            context.eTH()
1033        end
1034        context.eTR()
1035        context.eTABLEhead()
1036        context.bTABLEbody()
1037        for k,v in ipairs(header) do
1038            context.bTD()
1039            context.labeltext(v)
1040            context.eTD()
1041        end
1042    end
1043
1044    function calendar.print_footer()
1045
1046        local columns = 1
1047
1048        context.bTABLE({setups="table:footer"})
1049        context.bTABLEhead()
1050        context.bTR()
1051        for i = 1,columns do
1052            context.bTH()
1053            context.labeltext("c"..i)
1054            context.eTH()
1055        end
1056        context.eTR()
1057        context.eTABLEhead()
1058        context.bTABLEbody()
1059        for k,v in ipairs(header) do
1060            context.bTD()
1061            context.labeltext(v)
1062            context.eTD()
1063        end
1064    end
1065
1066    function calendar.print_header()
1067
1068        local columns = 1
1069
1070        context.bTABLE({setups="table:header"})
1071        context.bTABLEhead()
1072        context.bTR()
1073        for i = 1,columns do
1074            context.bTH()
1075            context.labeltext("c"..i)
1076            context.eTH()
1077        end
1078        context.eTR()
1079        context.eTABLEhead()
1080        context.bTABLEbody()
1081        for k,v in ipairs(header) do
1082            context.bTD()
1083            context.labeltext(v)
1084            context.eTD()
1085        end
1086    end
1087
1088    function calendar.print_footer()
1089
1090        local columns = 1
1091
1092        context.bTABLE({setups="table:footer"})
1093        context.bTABLEhead()
1094        context.bTR()
1095        for i = 1,columns do
1096            context.bTH()
1097            context.labeltext("c"..i)
1098            context.eTH()
1099        end
1100        context.eTR()
1101        context.eTABLEhead()
1102        context.bTABLEbody()
1103        for k,v in ipairs(header) do
1104            context.bTD()
1105            context.labeltext(v)
1106            context.eTD()
1107        end
1108    end
1109
1110   function calendar.print_header()
1111
1112        local columns = 1
1113
1114        context.bTABLE({setups="table:header"})
1115        context.bTABLEhead()
1116        context.bTR()
1117        for i = 1,columns do
1118            context.bTH()
1119            context.labeltext("c"..i)
1120            context.eTH()
1121        end
1122        context.eTR()
1123        context.eTABLEhead()
1124        context.bTABLEbody()
1125        for k,v in ipairs(header) do
1126            context.bTD()
1127            context.labeltext(v)
1128            context.eTD()
1129        end
1130    end
1131
1132    function calendar.print_footer()
1133
1134        local columns = 1
1135
1136        context.bTABLE({setups="table:footer"})
1137        context.bTABLEhead()
1138        context.bTR()
1139        for i = 1,columns do
1140            context.bTH()
1141            context.labeltext("c"..i)
1142            context.eTH()
1143        end
1144        context.eTR()
1145        context.eTABLEhead()
1146        context.bTABLEbody()
1147        for k,v in ipairs(header) do
1148            context.bTD()
1149            context.labeltext(v)
1150            context.eTD()
1151        end
1152    end
1153
1154    function calendar.print_header()
1155
1156        local columns = 1
1157
1158        context.bTABLE({setups="table:header"})
1159        context.bTABLEhead()
1160        context.bTR()
1161        for i = 1,columns do
1162            context.bTH()
1163            context.labeltext("c"..i)
1164            context.eTH()
1165        end
1166        context.eTR()
1167        context.eTABLEhead()
1168        context.bTABLEbody()
1169        for k,v in ipairs(header) do
1170            context.bTD()
1171            context.labeltext(v)
1172            context.eTD()
1173        end
1174    end
1175
1176    function calendar.print_footer()
1177
1178        local columns = 1
1179
1180        context.bTABLE({setups="table:footer"})
1181        context.bTABLEhead()
1182        context.bTR()
1183        for i = 1,columns do
1184            context.bTH()
1185            context.labeltext("c"..i)
1186            context.eTH()
1187        end
1188        context.eTR()
1189        context.eTABLEhead()
1190        context.bTABLEbody()
1191        for k,v in ipairs(header) do
1192            context.bTD()
1193            context.labeltext(v)
1194            context.eTD()
1195        end
1196    end
1197
1198    function calendar.print_header()
1199
1200        local columns = 1
1201
1202        context.bTABLE({setups="table:header"})
1203        context.bTABLEhead()
1204        context.bTR()
1205        for i = 1,columns do
1206            context.bTH()
1207            context.labeltext("c"..i)
1208            context.eTH()
1209        end
1210        context.eTR()
1211        context.eTABLEhead()
1212        context.bTABLEbody()
1213        for k,v in ipairs(header) do
1214            context.bTD()
1215            context.labeltext(v)
1216            context.eTD()
1217        end
1218    end
1219
1220    function calendar.print_footer()
1221
1222        local columns = 1
1223
1224        context.bTABLE({setups="table:footer"})
1225        context.bTABLEhead()
1226        context.bTR()
1227        for i = 1,columns do
1228            context.bTH()
1229            context.labeltext("c"..i)
1230            context.eTH()
1231        end
1232        context.eTR()
1233        context.eTABLEhead()
1234        context.bTABLEbody()
1235        for k,v in ipairs(header) do
1236            context.bTD()
1237            context.labeltext(v)
1238            context.eTD()
1239        end
1240    end
1241
1242    function calendar.print_header()
1243
1244        local columns = 1
1245
1246        context.bTABLE({setups="table:header"})
1247        context.bTABLEhead()
1248        context.bTR()
1249        for i = 1,columns do
1250            context.bTH()
1251            context.labeltext("c"..i)
1252            context.eTH()
1253        end
1254        context.eTR()
1255        context.eTABLEhead()
1256        context.bTABLEbody()
1257        for k,v in ipairs(header) do
1258            context.bTD()
1259            context.labeltext(v)
1260            context.eTD()
1261        end
1262    end
1263
1264    function calendar.print_footer()
1265
1266        local columns = 1
1267
1268        context.bTABLE({setups="table:footer"})
1269        context.bTABLEhead()
1270        context.bTR()
1271        for i = 1,columns do
1272            context.bTH()
1273            context.labeltext("c"..i)
1274            context.eTH()
1275        end
1276        context.eTR()
1277        context.eTABLEhead()
1278        context.bTABLEbody()
1279        for k,v in ipairs(header) do
1280            context.bTD()
1281            context.labeltext(v)
1282            context.eTD()
1283        end
1284    end
1285
1286    function calendar.print_header()
1287
1288        local columns = 1
1289
1290        context.bTABLE({setups="table:header"})
1291        context.bTABLEhead()
1292        context.bTR()
1293        for i = 1,columns do
1294            context.bTH()
1295            context.labeltext("c"..i)
1296            context.eTH()
1297        end
1298        context.eTR()
1299        context.eTABLEhead()
1300        context.bTABLEbody()
1301        for k,v in ipairs(header) do
1302            context.bTD()
1303            context.labeltext(v)
1304            context.eTD()
1305        end
1306    end
1307
1308    function calendar.print_footer()
1309
1310        local columns = 1
1311
1312        context.bTABLE({setups="table:footer"})
1313        context.bTABLEhead()
1314        context.bTR()
1315        for i = 1,columns do
1316            context.bTH()
1317            context.labeltext("c"..i)
1318            context.eTH()
1319        end
1320        context.eTR()
1321        context.eTABLEhead()
1322        context.bTABLEbody()
1323        for k,v in ipairs(header) do
1324            context.bTD()
1325            context.labeltext(v)
1326            context.eTD()
1327        end
1328    end
1329
1330    function calendar.print_header()
1331
1332        local columns = 1
1333
1334        context.bTABLE({setups="table:header"})
1335        context.bTABLEhead()
1336        context.bTR()
1337        for i = 1,columns do
1338            context.bTH()
1339            context.labeltext("c"..i)
1340            context.eTH()
1341        end
1342        context.eTR()
1343        context.eTABLEhead()
1344        context.bTABLEbody()
1345        for k,v in ipairs(header) do
1346            context.bTD()
1347            context.labeltext(v)
1348            context.eTD()
1349        end
1350    end
1351
1352    function calendar.print_footer()
1353
1354        local columns = 1
1355
1356        context.bTABLE({setups="table:footer"})
1357        context.bTABLEhead()
1358        context.bTR()
1359        for i = 1,columns do
1360            context.bTH()
1361            context.labeltext("c"..i)
1362            context.eTH()
1363        end
1364        context.eTR()
1365        context.eTABLEhead()
1366        context.bTABLEbody()
1367        for k,v in ipairs(header) do
1368            context.bTD()
1369            context.labeltext(v)
1370            context.eTD()
1371        end
1372    end
1373
1374    function calendar.print_header()
1375
1376        local columns = 1
1377
1378        context.bTABLE({setups="table:header"})
1379        context.bTABLEhead()
1380        context.bTR()
1381        for i = 1,columns do
1382            context.bTH()
1383            context.labeltext("c"..i)
1384            context.eTH()
1385        end
1386        context.eTR()
1387        context.eTABLEhead()
1388        context.bTABLEbody()
1389        for k,v in ipairs(header) do
1390            context.bTD()
1391            context.labeltext(v)
1392            context.eTD()
1393        end
1394    end
1395
1396    function calendar.print_footer()
1397
1398        local columns = 1
1399
1400        context.bTABLE({setups="table:footer"})
1401        context.bTABLEhead()
1402        context.bTR()
1403        for i = 1,columns do
1404            context.bTH()
1405            context.labeltext("c"..i)
1406            context.eTH()
1407        end
1408        context.eTR()
1409        context.eTABLEhead()
1410        context.bTABLEbody()
1411        for k,v in ipairs(header) do
1412            context.bTD()
1413            context.labeltext(v)
1414            context.eTD()
1415        end
1416    end
1417
1418    function calendar.print_header()
1419
1420        local columns = 1
1421
1422        context.bTABLE({setups="table:header"})
1423        context.bTABLEhead()
1424        context.bTR()
1425        for i = 1,columns do
1426            context.bTH()
1427            context.labeltext("c"..i
```

Interval Calendar

```
57      context.bTR()
58      context.bTD()
59      context(v)
60      context.eTD()
61      for i=1,columns-1 do
62          context.bTD()
63          context.strut()
64          context.eTD()
65      end
66      context.eTR()
67  end
68  context.eTABLEbody()
69  context.eTABLE()
70 end

71 function calendar.date(inputstr)
72     -- report("Input : %s",inputstr)

73     local sep = "%-%s/"
74     if sep == nil then
75         sep = "%s"
76     end
77     local t={}
78     i=1
79     for str in string.gmatch(inputstr, "([^.%s..%s]+)") do
80         t[i] = str
81         -- report("Actual string %s", str)
82         i = i + 1
83     end

84     -- report("Datum strings: %s, %s, %s", t[1],t[2],t[3])

85     return t[1],t[2],t[3]
86 end
87 \stopluacode
```

The main function is the ‘calendar.interval_checks’ function with 4 parameters. The function needs a start-date, an end-date, the number of columns for the table in the out-put and the interval in days. The function calculates all dates fitting into the start and end dates based on the epoch-time. It converts the timestamp into a human readable date format and puts the values into a table ‘interval_dates’.

The second function is called from within the first function and gets the number of columns as parameter. This function creates the out-put table. It is a flexible setup, which is based on the number of the columns provided as a parameter. Label-texts are used for the column heads and the column heads are repeated at the top of each following page.

The third function is there to deal with the preparation of the dates, which are sent to LUA as strings. It extracts the year (yyyy) the month (m) and day (d). The extracted values are put into a table. The dates can be entered in the format 2022-8-21 or as 2022/8/21.

Macro for Calling the List Generator

The command needs 4 parameters: Start-date, stop-date, number of columns in the table and the interval in days.

```
88 \define[4]\Checklist{\ctxlua{thirddata.calendar.interval_checks(#1,#2,#3,#4)}}
```

Interval Calendar

Setups for the Out-Put Table

The layout of the out-put table is organized at the \TeX end. If the table design changes in terms of more or less columns, this setup has to be adapted.

```
89 \startsetups table:interval_check
90   \setupTABLE[split=repeat]
91   \setupTABLE[r][each][height=12mm,align=lohi]
92   \setupTABLE[r][1][style=bold,align={lohi,middle}]
93   \setupTABLE[c][1][width=0.2\textwidth]
94   \setupTABLE[c][2,3,4][width=0.15\textwidth]
95   \setupTABLE[c][5][width=0.3\textwidth]
96 \stopsetups
```

Interval Calendar

Column Head Texts

It has been chosen to use the label-text mechanism to implement the head texts of the columns. Depending on the design of the out-put table the names can be adapted, the list can be made longer or shorter according to the needs.

```
97 \setuplabeltext[en][c1=Datum]
98 \setuplabeltext[en][c2=Gas]
99 \setuplabeltext[en][c3=Electricity]
100 \setuplabeltext[en][c4=Water]
101 \setuplabeltext[en][c5=Observation]
```

Interval Calendar

Header Texts of Out-Put

Also for the header texts the label text mechanism is used. Now only three intervals are defined, but this mechanism allows easily to extend the list of possible header texts. It also allows to implement other languages. Depending on the setting of the \mainlanguage[] the correct labels are picked up and typeset.

```

102 \setuplabeltext[en][weekly={Weekly Checks}]
103 \setuplabeltext[en][twoweekly={Two-weekly Checks}]
104 \setuplabeltext[en][monthly={Monthly Checks}]

105 \setuplabeltext[de][weekly={Wochen Checks}]
106 \setuplabeltext[de][twoweekly={Zwei Wochen Checks}]
107 \setuplabeltext[de][monthly={Monatliche Checks}]

108 \setuplabeltext[nl][weekly={Weekelijkse Checks}]
109 \setuplabeltext[nl][twoweekly={Twee-weekelijkse Checks}]
110 \setuplabeltext[nl][monthly={Maandelijkse Checks}]
```

Interval Calendar

Header Text Setup

Each list gets a header text fitting the purpose of the list.

```

111 \startmode[weekly]
112   \setupheadertexts
113   [\midaligned{\bfc \labeltext{weekly}}]
114   []
115 \stopmode

116 \startmode[twoweekly]
117   \setupheadertexts
118   [\midaligned{\bfc \labeltext{twoweekly}}]
119   []
120 \stopmode

121 \startmode[monthly]
122   \setupheadertexts
123   [\midaligned{\bfc \labeltext{monthly}}]
124   []
125 \stopmode

126 \stopmodule

```

