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1 Option Explicit
2 ' Get the slot corresponding to the Margin time not after,
3 '   if the margin is too early, return the slot compatible with the earliest time (schedule)
4 ' the slot could be the last one because large Margin
5
6 Function AU_NPMF_GetEarlierAvailableSlots(ByRef lSlotUsed() As Integer, lSlot_nb As Integer, _
7     lCurrentSlot) As Integer
8
9     Dim lTargetSlot As Integer
10    Dim li As Integer
11
12    ' find a slot corresponding to the Margin value to put the flight
13    lTargetSlot = -1
14
15    ' the slot could be the last one because large Margin
16    ' but no problem
17
18    ' the flight could have a target time = to the schedule and if no anticipation then bad return value !!!!
19    For li = lCurrentSlot To 0 Step -1
20
21        ' first store the latest time compatible with the flight schedule
22        If lSlotUsed(li) = -1 Then
23            lTargetSlot = li
24            li = 0
25        End If
26    Next li
27
28    AU_NPMF_GetEarlierAvailableSlots = lTargetSlot
29
30 End Function
31
32
33
34
35 ' Get the slot corresponding to the Margin time not after,
36 '   if the margin is too early, return the slot compatible with the earliest time (schedule)
37 ' the slot could be the last one because large Margin
38
39 Function AU_NPMF_GetTargetSlots(ByRef lSlotTime() As Date, lSlot_nb As Integer, _
40     lMarginTime, lEarliestTime) As Integer
41
42     Dim lTargetSlot As Integer
43     Dim lTimeSlot As Integer
44     Dim li As Integer
45
46     ' find a slot corresponding to the Margin value to put the flight
47     lTargetSlot = -1
48     lTimeSlot = -1
49
50     ' the slot could be the last one because large Margin
51     ' but no problem
52
53     ' the flight could have a target time = to the schedule and if no anticipation then bad return value !!!!
54     For li = lSlot_nb - 1 To 0 Step -1
55
56         ' first store the latest time compatible with the flight schedule
57         If lSlotTime(li) >= lEarliestTime Then
58             lTimeSlot = li
59         End If
60
61         If lSlotTime(li) <= lMarginTime Then
62             ' if found a slot test also if compatible with shedule, otherwise take the last compatible
63             If lSlotTime(li) >= lEarliestTime Then
64                 lTargetSlot = li
65                 li = 0
66             End If
67         End If
68     Next li
69
70     If lTargetSlot > -1 Then
71         AU_NPMF_GetTargetSlots = lTargetSlot
72     ElseIf lTimeSlot > -1 Then
73         AU_NPMF_GetTargetSlots = lTimeSlot
74     Else
75         AU_NPMF_GetTargetSlots = -1
76     End If
77
78 End Function
79
80
81 ' Get the slot corresponding to the Margin time not after,
82 '   if the margin is too early, return the slot compatible with the earliest time (schedule)
83 ' the slot could be the last one because large Margin
84
85 Function AU_NPMF_GetLaterAvailableSlots(ByRef lSlotTime() As Date, ByRef lSlotUsed() As Integer, lSlot_nb As Integer,
86     lCurrentSlot, lEarliestTime) As Integer
87
88     Dim lTargetSlot As Integer
89     Dim li As Integer
90
91     ' find a slot corresponding to the Margin value to put the flight
92     lTargetSlot = -1
93
94     ' the flight could have a target time = to the schedule and if no anticipation then bad return value !!!!

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95 ' test also the current one just to be sure
96 For li = lCurrentSlot To lSlot_nb - 1
97     If lSlotUsed(li) = -1 Then
98         ' take the first with a compatible time with schedule
99         If lSlotTime(li) >= lEarliestTime Then
100             lTargetSlot = li
101             li = lSlot_nb
102         End If
103     End If
104 Next li
105
106 AU_NPMF_GetLaterAvailableSlots = lTargetSlot
107
108 End Function
109
110
111
112 ' Get the slot corresponding to the Margin time not after,
113 ' if the margin is too early, return the slot compatible with the earliest time (schedule)
114 ' the slot could be the last one because large Margin
115
116 Function AU_NPMF_GetIndexOfEarlierFlightCanMove(lAll_AUFlights As CL_AllFlights, _
117     ByRef lSlotTime() As Date, ByRef lSlotUsed() As Integer, lSlot_nb As Integer, _
118     lCurrentSlot As Integer, lCurrentFlight As Integer) As Integer
119
120     Dim lEarlierAvailableSlot As Integer
121     Dim llEarlierAvailableSlotTime As Date
122     Dim lTargetSlot As Integer
123
124     Dim lEarliestFlightSlot As Integer
125     Dim li As Integer
126     Dim ltime As Date
127
128     ' find a slot corresponding to the Margin value to put the flight
129
130     If lSlotUsed(lCurrentSlot) = -1 Then
131         If AU_NPM_ManageMarginPrioFlights_IsFlightScheduleCompatible(lAll_AUFlights, lSlotTime(lCurrentSlot),
132             lCurrentFlight) = True Then
133             ' this flight is compatible
134             lTargetSlot = lCurrentSlot
135         Else
136             ' no solution because current and earlier slot not compatible with schedule
137             lTargetSlot = -1
138         End If
139     Else
140         ' find an empty slot
141         lEarlierAvailableSlot = AU_NPMF_GetEarlierAvailableSlots(lSlotUsed(), lSlot_nb, lCurrentSlot)
142         If lEarlierAvailableSlot < 0 Then
143             ' no earlier slot available
144             lTargetSlot = -1
145         Else
146             lTargetSlot = lEarlierAvailableSlot
147         End If
148     End If
149     AU_NPMF_GetIndexOfEarlierFlightCanMove = lTargetSlot
150 End Function
151
152
153
154
155
156 '----- AU_NPMF_GetFirstCompatibleSlot
157 ' Get the first slot corresponding to the schedule time ,
158 Function AU_NPMF_GetFirstCompatibleSlot(lAll_AUFlights As CL_AllFlights, _
159     ByRef lSlotTime() As Date, ByRef lSlotUsed() As Integer, lSlot_nb As Integer, _
160     lCurrentFlight As Integer) As Integer
161
162     Dim lEarliestTime As Date
163     Dim lTargetSlot As Integer
164     Dim li As Integer
165
166     ' find a slot corresponding to the Margin value to put the flight
167
168     ' find an empty slot
169     lEarliestTime = lAll_AUFlights.GetRefBlockTime(lCurrentFlight) _
170         - GHspt_FlightEarlyDeparture_forDate
171
172
173     lTargetSlot = -1
174     For li = 0 To lSlot_nb - 1
175
176         If lSlotTime(li) >= lEarliestTime Then
177             ' this slot is compatible
178             lTargetSlot = li
179             li = lSlot_nb
180         End If
181     Next li
182
183     AU_NPMF_GetFirstCompatibleSlot = lTargetSlot
184
185 End Function
186
187
188 '----- AU_NPM_ManageMarginPrioFlights_AssignPrioOnlyFlight
189 ' Assign priority only flights in the remaining slot

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190 Function AU_NPM_ManageMarginPrioFlights_IsFlightScheduleCompatible(lAll_AUFlights As CL_AllFlights, _
191     lSlotTime As Date, lFlightIx As Integer) As Boolean
192
193     Dim lEarliestTime As Date
194     Dim lReturn As Boolean
195
196     ' the slot is available : end of the recursive function
197     lEarliestTime = lAll_AUFlights.GetRefBlockTime(lFlightIx) _
198         - GHspt_FlightEarlyDeparture_forDate
199
200     ' test if flight can be move
201     If lSlotTime >= lEarliestTime Then
202         lReturn = True
203     Else
204         lReturn = False
205     End If
206
207     AU_NPM_ManageMarginPrioFlights_IsFlightScheduleCompatible = lReturn
208 End Function
209
210
211
212
213 '----- AU_NPM_ManageMarginPrioFlights_UpdateFDATimeFromSlots
214 Sub AU_NPM_ManageMarginPrioFlights_UpdateFDATimeFromSlots(lAll_AUFlights As CL_AllFlights, _
215     ByRef lSlotTime() As Date, ByRef lSlotList() As Integer, lSlot_nb As Integer)
216
217     Dim lFl As Integer
218     Dim lFlIx As Integer
219     Dim ltime As Date
220
221     ' ----- manage the baseline flights on schedule
222     ' loop on baseline flights
223     For lFl = 0 To lSlot_nb - 1
224         lFlIx = lSlotList(lFl)
225         If lFlIx > -1 Then
226             ltime = lSlotTime(lFl)
227             Call lAll_AUFlights.SetFDATime(lFlIx, ltime)
228         End If
229     Next lFl
230
231 End Sub
232
233
234
235
236

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