

# MPS 文件数学模型提取

完整版

MPS Extractor

2025 年 7 月 8 日

## 目录

## 1 模型概览

文件名: ran14x18.mps

模型名: RAN14X18

变量总数: 504

约束总数: 284

优化方向: Minimize

## 2 目标函数

目标函数摘要:

$$\min \quad Z = \sum_i c_i Y_i + \sum_j d_j X_j \quad (1)$$

Y 变量: 252 个, 系数范围 [65, 264]

X 变量: 252 个, 系数范围 [1, 10]

完整目标函数:

$$\min \quad Z = 241Y_{250} + 202Y_0 + 222Y_1 \quad (2)$$

$$+ 100Y_2 + 174Y_3 + 116Y_4 \quad (3)$$

$$+ 253Y_5 + 252Y_6 + 113Y_7 \quad (4)$$

$$+ 261Y_8 + 240Y_9 + 106Y_{10} \quad (5)$$

$$+ 146Y_{11} + 76Y_{12} + 169Y_{13} \quad (6)$$

$$+ 247Y_{14} + 194Y_{15} + 208Y_{16} \quad (7)$$

$$+ 242Y_{17} + 190Y_{18} + 158Y_{19} \quad (8)$$

$$+ 243Y_{20} + 175Y_{21} + 191Y_{22} \quad (9)$$

$$+ 243Y_{23} + 162Y_{24} + 251Y_{25} \quad (10)$$

$$+ 248Y_{26} + 213Y_{27} + 123Y_{28} \quad (11)$$

$$+ 65Y_{29} + 73Y_{30} + 246Y_{31} \quad (12)$$

$$+ 181Y_{32} + 132Y_{33} + 91Y_{34} \quad (13)$$

$$+ 264Y_{35} + 229Y_{36} + 112Y_{37} \quad (14)$$

$$+ 107Y_{38} + 193Y_{39} + 214Y_{40} \quad (15)$$

$$+ 120Y_{41} + 154Y_{42} + 150Y_{43} \quad (16)$$

$$+ 94Y_{44} + 74Y_{45} + 104Y_{46} \quad (17)$$

$$+ 152Y_{47} + 94Y_{48} + 258Y_{49} \quad (18)$$

$$+ 264Y_{50} + 88Y_{51} + 262Y_{52} \quad (19)$$

$$+ 220Y_{53} + 190Y_{54} + 198Y_{55} \quad (20)$$

$$+ 130Y_{56} + 118Y_{57} + 135Y_{58} \quad (21)$$

$$+ 91Y_{59} + 243Y_{60} + 258Y_{61} \quad (22)$$

$$+ 98Y_{62} + 78Y_{63} + 188Y_{64} \quad (23)$$

$$+ 129Y_{65} + 162Y_{66} + 208Y_{67} \quad (24)$$

$$+ 110Y_{68} + 186Y_{69} + 262Y_{70} \quad (25)$$

$$+ 223Y_{71} + 154Y_{72} + 217Y_{73} \quad (26)$$

$$+ 156Y_{74} + 91Y_{75} + 233Y_{76} \quad (27)$$

$$+ 191Y_{77} + 172Y_{78} + 157Y_{79} \quad (28)$$

$$+ 202Y_{80} + 212Y_{81} + 169Y_{82} \quad (29)$$

$$+ 173Y_{83} + 150Y_{84} + 96Y_{85} \quad (30)$$

$$+ 210Y_{86} + 194Y_{87} + 106Y_{88} \quad (31)$$

$$+ 221Y_{89} + 141Y_{90} + 149Y_{91} \quad (32)$$

$$+ 234Y_{92} + 230Y_{93} + 126Y_{94} \quad (33)$$

$$+ 113Y_{95} + 101Y_{96} + 240Y_{97} \quad (34)$$

$$+ 138Y_{98} + 87Y_{99} + 242Y_{100} \quad (35)$$

$$+ 189Y_{101} + 93Y_{102} + 204Y_{103} \quad (36)$$

$$+ 184Y_{104} + 176Y_{105} + 148Y_{106} \quad (37)$$

$$+ 140Y_{107} + 131Y_{108} + 256Y_{109} \quad (38)$$

$$+ 147Y_{110} + 252Y_{111} + 107Y_{112} \quad (39)$$

$$+ 112Y_{113} + 165Y_{114} + 255Y_{115} \quad (40)$$

$$+ 71Y_{116} + 244Y_{117} + 192Y_{118} \quad (41)$$

$$+ 168Y_{119} + 250Y_{120} + 132Y_{121} \quad (42)$$

$$+ 177Y_{122} + 195Y_{123} + 98Y_{124} \quad (43)$$

$$+ 105Y_{125} + 211Y_{126} + 85Y_{127} \quad (44)$$

$$+ 124Y_{128} + 171Y_{129} + 139Y_{130} \quad (45)$$

$$+ 115Y_{131} + 65Y_{132} + 253Y_{133} \quad (46)$$

$$+ 217Y_{134} + 178Y_{135} + 186Y_{136} \quad (47)$$

$$+ 87Y_{137} + 119Y_{138} + 137Y_{139} \quad (48)$$

$$+ 82Y_{140} + 208Y_{141} + 205Y_{142} \quad (49)$$

$$+ 223Y_{143} + 147Y_{144} + 149Y_{145} \quad (50)$$

$$+ 214Y_{146} + 105Y_{147} + 132Y_{148} \quad (51)$$

$$+ 131Y_{149} + 202Y_{150} + 213Y_{151} \quad (52)$$

$$+ 81Y_{152} + 234Y_{153} + 226Y_{154} \quad (53)$$

$$+ 202Y_{155} + 138Y_{156} + 245Y_{157} \quad (54)$$

$$+ 148Y_{158} + 209Y_{159} + 177Y_{160} \quad (55)$$

$$+ 152Y_{161} + 249Y_{162} + 126Y_{163} \quad (56)$$

$$+ 145Y_{164} + 235Y_{165} + 234Y_{166} \quad (57)$$

$$+ 92Y_{167} + 201Y_{168} + 142Y_{169} \quad (58)$$

$$+ 106Y_{170} + 113Y_{171} + 134Y_{172} \quad (59)$$

$$+ 90Y_{173} + 138Y_{174} + 114Y_{175} \quad (60)$$

$$+ 239Y_{176} + 222Y_{177} + 262Y_{178} \quad (61)$$

$$+ 205Y_{179} + 95Y_{180} + 251Y_{181} \quad (62)$$

$$+ 145Y_{182} + 131Y_{183} + 130Y_{184} \quad (63)$$

$$+ 222Y_{185} + 192Y_{186} + 179Y_{187} \quad (64)$$

$$\begin{aligned}
& + 183Y_{188} + 234Y_{189} + 196Y_{190} & (65) \\
& + 106Y_{191} + 200Y_{192} + 147Y_{193} & (66) \\
& + 72Y_{194} + 176Y_{195} + 231Y_{196} & (67) \\
& + 160Y_{197} + 109Y_{198} + 234Y_{199} & (68) \\
& + 78Y_{200} + 115Y_{201} + 136Y_{202} & (69) \\
& + 221Y_{203} + 252Y_{204} + 129Y_{205} & (70) \\
& + 80Y_{206} + 94Y_{207} + 65Y_{208} & (71) \\
& + 177Y_{209} + 258Y_{210} + 137Y_{211} & (72) \\
& + 185Y_{212} + 242Y_{213} + 181Y_{214} & (73) \\
& + 132Y_{215} + 107Y_{216} + 233Y_{217} & (74) \\
& + 91Y_{218} + 112Y_{219} + 261Y_{220} & (75) \\
& + 150Y_{221} + 119Y_{222} + 102Y_{223} & (76) \\
& + 207Y_{224} + 138Y_{225} + 71Y_{226} & (77) \\
& + 122Y_{227} + 125Y_{228} + 166Y_{229} & (78) \\
& + 168Y_{230} + 144Y_{231} + 174Y_{232} & (79) \\
& + 241Y_{233} + 191Y_{234} + 154Y_{235} & (80) \\
& + 101Y_{236} + 66Y_{237} + 156Y_{238} & (81) \\
& + 128Y_{239} + 234Y_{240} + 75Y_{241} & (82) \\
& + 86Y_{242} + 210Y_{243} + 231Y_{244} & (83) \\
& + 79Y_{245} + 105Y_{246} + 166Y_{247} & (84) \\
& + 147Y_{248} + 171Y_{249} + 80Y_{251} & (85) \\
& + 4X_0 + 4X_1 + 10X_2 & (86) \\
& + 3X_3 + 4X_4 + 9X_5 & (87) \\
& + 10X_6 + 9X_7 + 3X_8 & (88) \\
& + 10X_9 + 5X_{10} + 10X_{11} & (89) \\
& + 9X_{12} + 10X_{13} + 5X_{14} & (90) \\
& + 8X_{15} + 9X_{16} + 8X_{17} & (91) \\
& + 7X_{18} + 1X_{19} + 7X_{20} & (92) \\
& + 4X_{21} + 6X_{22} + 7X_{23} & (93) \\
& + 7X_{24} + 1X_{25} + 4X_{26} & (94) \\
& + 4X_{27} + 10X_{28} + 1X_{29} & (95) \\
& + 7X_{30} + 5X_{31} + 8X_{32} & (96) \\
& + 3X_{33} + 3X_{34} + 1X_{35} & (97) \\
& + 10X_{36} + 10X_{37} + 4X_{38} & (98) \\
& + 10X_{39} + 3X_{40} + 2X_{41} & (99) \\
& + 3X_{42} + 8X_{43} + 3X_{44} & (100) \\
& + 7X_{45} + 1X_{46} + 5X_{47} & (101) \\
& + 5X_{48} + 6X_{49} + 1X_{50} & (102) \\
& + 8X_{51} + 3X_{52} + 8X_{53} & (103)
\end{aligned}$$

$$\begin{aligned}
& + 7X_{54} + 1X_{55} + 1X_{56} & (104) \\
& + 1X_{57} + 10X_{58} + 1X_{59} & (105) \\
& + 7X_{60} + 6X_{61} + 6X_{62} & (106) \\
& + 2X_{63} + 5X_{64} + 5X_{65} & (107) \\
& + 7X_{66} + 9X_{67} + 6X_{68} & (108) \\
& + 3X_{69} + 3X_{70} + 5X_{71} & (109) \\
& + 4X_{72} + 10X_{73} + 2X_{74} & (110) \\
& + 1X_{75} + 7X_{76} + 8X_{77} & (111) \\
& + 1X_{78} + 2X_{79} + 4X_{80} & (112) \\
& + 5X_{81} + 9X_{82} + 2X_{83} & (113) \\
& + 8X_{84} + 7X_{85} + 2X_{86} & (114) \\
& + 8X_{87} + 5X_{88} + 3X_{89} & (115) \\
& + 3X_{90} + 7X_{91} + 4X_{92} & (116) \\
& + 10X_{93} + 8X_{94} + 10X_{95} & (117) \\
& + 9X_{96} + 9X_{97} + 6X_{98} & (118) \\
& + 8X_{99} + 9X_{100} + 5X_{101} & (119) \\
& + 5X_{102} + 6X_{103} + 1X_{104} & (120) \\
& + 4X_{105} + 9X_{106} + 5X_{107} & (121) \\
& + 2X_{108} + 7X_{109} + 10X_{110} & (122) \\
& + 10X_{111} + 4X_{112} + 10X_{113} & (123) \\
& + 6X_{114} + 8X_{115} + 6X_{116} & (124) \\
& + 6X_{117} + 6X_{118} + 8X_{119} & (125) \\
& + 2X_{120} + 3X_{121} + 6X_{122} & (126) \\
& + 9X_{123} + 7X_{124} + 5X_{125} & (127) \\
& + 1X_{126} + 7X_{127} + 10X_{128} & (128) \\
& + 1X_{129} + 7X_{130} + 3X_{131} & (129) \\
& + 1X_{132} + 10X_{133} + 10X_{134} & (130) \\
& + 6X_{135} + 2X_{136} + 9X_{137} & (131) \\
& + 1X_{138} + 6X_{139} + 5X_{140} & (132) \\
& + 8X_{141} + 6X_{142} + 5X_{143} & (133) \\
& + 10X_{144} + 7X_{145} + 4X_{146} & (134) \\
& + 1X_{147} + 1X_{148} + 1X_{149} & (135) \\
& + 8X_{150} + 4X_{151} + 4X_{152} & (136) \\
& + 3X_{153} + 2X_{154} + 4X_{155} & (137) \\
& + 6X_{156} + 6X_{157} + 8X_{158} & (138) \\
& + 3X_{159} + 6X_{160} + 6X_{161} & (139) \\
& + 4X_{162} + 7X_{163} + 1X_{164} & (140) \\
& + 3X_{165} + 3X_{166} + 1X_{167} & (141) \\
& + 3X_{168} + 3X_{169} + 5X_{170} & (142)
\end{aligned}$$

$$+ 9X_{171} + 9X_{172} + 2X_{173} \quad (143)$$

$$+ 6X_{174} + 8X_{175} + 2X_{176} \quad (144)$$

$$+ 4X_{177} + 3X_{178} + 6X_{179} \quad (145)$$

$$+ 4X_{180} + 1X_{181} + 1X_{182} \quad (146)$$

$$+ 2X_{183} + 1X_{184} + 4X_{185} \quad (147)$$

$$+ 6X_{186} + 8X_{187} + 2X_{188} \quad (148)$$

$$+ 4X_{189} + 2X_{190} + 5X_{191} \quad (149)$$

$$+ 5X_{192} + 8X_{193} + 7X_{194} \quad (150)$$

$$+ 4X_{195} + 6X_{196} + 9X_{197} \quad (151)$$

$$+ 7X_{198} + 4X_{199} + 1X_{200} \quad (152)$$

$$+ 3X_{201} + 10X_{202} + 3X_{203} \quad (153)$$

$$+ 1X_{204} + 5X_{205} + 2X_{206} \quad (154)$$

$$+ 5X_{207} + 1X_{208} + 5X_{209} \quad (155)$$

$$+ 6X_{210} + 6X_{211} + 3X_{212} \quad (156)$$

$$+ 9X_{213} + 9X_{214} + 3X_{215} \quad (157)$$

$$+ 4X_{216} + 7X_{217} + 1X_{218} \quad (158)$$

$$+ 10X_{219} + 3X_{220} + 8X_{221} \quad (159)$$

$$+ 2X_{222} + 9X_{223} + 9X_{224} \quad (160)$$

$$+ 6X_{225} + 6X_{226} + 9X_{227} \quad (161)$$

$$+ 7X_{228} + 7X_{229} + 9X_{230} \quad (162)$$

$$+ 1X_{231} + 3X_{232} + 10X_{233} \quad (163)$$

$$+ 6X_{234} + 4X_{235} + 8X_{236} \quad (164)$$

$$+ 1X_{237} + 2X_{238} + 3X_{239} \quad (165)$$

$$+ 4X_{240} + 9X_{241} + 9X_{242} \quad (166)$$

$$+ 2X_{243} + 6X_{244} + 2X_{245} \quad (167)$$

$$+ 5X_{246} + 7X_{247} + 8X_{248} \quad (168)$$

$$+ 10X_{249} + 10X_{250} + 2X_{251}$$

### 3 约束条件

#### 3.1 等式约束 (32 个)

$$X_{16} + X_{17} = +21 \quad (C\_1) \quad (169)$$

$$X_{32} + X_{33} + X_{34} + X_{35} = +19 \quad (C\_2) \quad (170)$$

$$X_{50} + X_{51} + X_{52} + X_{53} = +24 \quad (C\_3) \quad (171)$$

$$X_{68} + X_{69} + X_{70} + X_{71} = +10 \quad (C\_4) \quad (172)$$

$$X_{86} + X_{87} + X_{88} + X_{89} = +27 \quad (C\_5) \quad (173)$$

$$X_{104} + X_{105} + X_{106} + X_{107} = +25 \quad (C\_6) \quad (174)$$

$$X_{121} + X_{122} + X_{123} + X_{124} + X_{125} = +10 \quad (C\_7) \quad (175)$$

$$X_{139} + X_{140} + X_{141} + X_{142} + X_{143} = +16 \quad (C\_8) \quad (176)$$

$X_{157} + X_{158} + X_{159} + X_{160} + X_{161} = +17$	(C_9)	(177)
$X_{175} + X_{176} + X_{177} + X_{178} + X_{179} = +38$	(C_10)	(178)
$X_{192} + X_{193} + X_{194} + X_{195} + X_{196} + X_{197} = +22$	(C_11)	(179)
$X_{210} + X_{211} + X_{212} + X_{213} + X_{214} + X_{215} = +33$	(C_12)	(180)
$X_{228} + X_{229} + X_{230} + X_{231} + X_{232} + X_{233} = +22$	(C_13)	(181)
$X_{246} + X_{247} + X_{248} + X_{249} + X_{250} + X_{251} = +26$	(C_14)	(182)
$X_{234} = +6$	(C_15)	(183)
$X_{235} = +13$	(C_16)	(184)
$X_{236} = +21$	(C_17)	(185)
$X_{237} = +11$	(C_18)	(186)
$X_{238} = +20$	(C_19)	(187)
$X_{239} = +4$	(C_20)	(188)
$X_{240} = +35$	(C_21)	(189)
$X_{241} = +13$	(C_22)	(190)
$X_{242} = +20$	(C_23)	(191)
$X_{243} = +9$	(C_24)	(192)
$X_{244} = +7$	(C_25)	(193)
$X_{245} = +18$	(C_26)	(194)
$X_{246} = +14$	(C_27)	(195)
$X_{247} = +22$	(C_28)	(196)
$X_{248} = +33$	(C_29)	(197)
$X_{249} = +45$	(C_30)	(198)
$X_{250} = +11$	(C_31)	(199)
$X_{251} = +8$	(C_32)	(200)
		(201)

### 3.2 不等式约束 (284 个)

$X_0 - 6Y_0 \leq +0$	(G0)	(202)
$X_1 - 13Y_1 \leq +0$	(G1)	(203)
$X_2 - 21Y_2 \leq +0$	(G2)	(204)
$X_3 - 11Y_3 \leq +0$	(G3)	(205)
$X_4 - 20Y_4 \leq +0$	(G4)	(206)
$X_5 - 4Y_5 \leq +0$	(G5)	(207)
$X_6 - 21Y_6 \leq +0$	(G6)	(208)
$X_7 - 13Y_7 \leq +0$	(G7)	(209)
$X_8 - 20Y_8 \leq +0$	(G8)	(210)
$X_9 - 9Y_9 \leq +0$	(G9)	(211)
$X_{10} - 7Y_{10} \leq +0$	(G10)	(212)
$X_{11} - 18Y_{11} \leq +0$	(G11)	(213)
$X_{12} - 14Y_{12} \leq +0$	(G12)	(214)
$X_{13} - 21Y_{13} \leq +0$	(G13)	(215)

$X_{14} - 21Y_{14} \leq +0$	(G14)	(216)
$X_{15} - 21Y_{15} \leq +0$	(G15)	(217)
$X_{16} - 11Y_{16} \leq +0$	(G16)	(218)
$X_{17} - 8Y_{17} \leq +0$	(G17)	(219)
$X_{18} - 6Y_{18} \leq +0$	(G18)	(220)
$X_{19} - 13Y_{19} \leq +0$	(G19)	(221)
$X_{20} - 19Y_{20} \leq +0$	(G20)	(222)
$X_{21} - 11Y_{21} \leq +0$	(G21)	(223)
$X_{22} - 19Y_{22} \leq +0$	(G22)	(224)
$X_{23} - 4Y_{23} \leq +0$	(G23)	(225)
$X_{24} - 19Y_{24} \leq +0$	(G24)	(226)
$X_{25} - 13Y_{25} \leq +0$	(G25)	(227)
$X_{26} - 19Y_{26} \leq +0$	(G26)	(228)
$X_{27} - 9Y_{27} \leq +0$	(G27)	(229)
$X_{28} - 7Y_{28} \leq +0$	(G28)	(230)
$X_{29} - 18Y_{29} \leq +0$	(G29)	(231)
$X_{30} - 14Y_{30} \leq +0$	(G30)	(232)
$X_{31} - 19Y_{31} \leq +0$	(G31)	(233)
$X_{32} - 19Y_{32} \leq +0$	(G32)	(234)
$X_{33} - 19Y_{33} \leq +0$	(G33)	(235)
$X_{34} - 11Y_{34} \leq +0$	(G34)	(236)
$X_{35} - 8Y_{35} \leq +0$	(G35)	(237)
$X_{36} - 6Y_{36} \leq +0$	(G36)	(238)
$X_{37} - 13Y_{37} \leq +0$	(G37)	(239)
$X_{38} - 21Y_{38} \leq +0$	(G38)	(240)
$X_{39} - 11Y_{39} \leq +0$	(G39)	(241)
$X_{40} - 20Y_{40} \leq +0$	(G40)	(242)
$X_{41} - 4Y_{41} \leq +0$	(G41)	(243)
$X_{42} - 24Y_{42} \leq +0$	(G42)	(244)
$X_{43} - 13Y_{43} \leq +0$	(G43)	(245)
$X_{44} - 20Y_{44} \leq +0$	(G44)	(246)
$X_{45} - 9Y_{45} \leq +0$	(G45)	(247)
$X_{46} - 7Y_{46} \leq +0$	(G46)	(248)
$X_{47} - 18Y_{47} \leq +0$	(G47)	(249)
$X_{48} - 14Y_{48} \leq +0$	(G48)	(250)
$X_{49} - 22Y_{49} \leq +0$	(G49)	(251)
$X_{50} - 24Y_{50} \leq +0$	(G50)	(252)
$X_{51} - 24Y_{51} \leq +0$	(G51)	(253)
$X_{52} - 11Y_{52} \leq +0$	(G52)	(254)
$X_{53} - 8Y_{53} \leq +0$	(G53)	(255)
$X_{54} - 6Y_{54} \leq +0$	(G54)	(256)
$X_{55} - 10Y_{55} \leq +0$	(G55)	(257)



$X_{56} - 10Y_{56} \leq +0$	(G56)	(258)
$X_{57} - 10Y_{57} \leq +0$	(G57)	(259)
$X_{58} - 10Y_{58} \leq +0$	(G58)	(260)
$X_{59} - 4Y_{59} \leq +0$	(G59)	(261)
$X_{60} - 10Y_{60} \leq +0$	(G60)	(262)
$X_{61} - 10Y_{61} \leq +0$	(G61)	(263)
$X_{62} - 10Y_{62} \leq +0$	(G62)	(264)
$X_{63} - 9Y_{63} \leq +0$	(G63)	(265)
$X_{64} - 7Y_{64} \leq +0$	(G64)	(266)
$X_{65} - 10Y_{65} \leq +0$	(G65)	(267)
$X_{66} - 10Y_{66} \leq +0$	(G66)	(268)
$X_{67} - 10Y_{67} \leq +0$	(G67)	(269)
$X_{68} - 10Y_{68} \leq +0$	(G68)	(270)
$X_{69} - 10Y_{69} \leq +0$	(G69)	(271)
$X_{70} - 10Y_{70} \leq +0$	(G70)	(272)
$X_{71} - 8Y_{71} \leq +0$	(G71)	(273)
$X_{72} - 6Y_{72} \leq +0$	(G72)	(274)
$X_{73} - 13Y_{73} \leq +0$	(G73)	(275)
$X_{74} - 21Y_{74} \leq +0$	(G74)	(276)
$X_{75} - 11Y_{75} \leq +0$	(G75)	(277)
$X_{76} - 20Y_{76} \leq +0$	(G76)	(278)
$X_{77} - 4Y_{77} \leq +0$	(G77)	(279)
$X_{78} - 27Y_{78} \leq +0$	(G78)	(280)
$X_{79} - 13Y_{79} \leq +0$	(G79)	(281)
$X_{80} - 20Y_{80} \leq +0$	(G80)	(282)
$X_{81} - 9Y_{81} \leq +0$	(G81)	(283)
$X_{82} - 7Y_{82} \leq +0$	(G82)	(284)
$X_{83} - 18Y_{83} \leq +0$	(G83)	(285)
$X_{84} - 14Y_{84} \leq +0$	(G84)	(286)
$X_{85} - 22Y_{85} \leq +0$	(G85)	(287)
$X_{86} - 27Y_{86} \leq +0$	(G86)	(288)
$X_{87} - 27Y_{87} \leq +0$	(G87)	(289)
$X_{88} - 11Y_{88} \leq +0$	(G88)	(290)
$X_{89} - 8Y_{89} \leq +0$	(G89)	(291)
$X_{90} - 6Y_{90} \leq +0$	(G90)	(292)
$X_{91} - 13Y_{91} \leq +0$	(G91)	(293)
$X_{92} - 21Y_{92} \leq +0$	(G92)	(294)
$X_{93} - 11Y_{93} \leq +0$	(G93)	(295)
$X_{94} - 20Y_{94} \leq +0$	(G94)	(296)
$X_{95} - 4Y_{95} \leq +0$	(G95)	(297)
$X_{96} - 25Y_{96} \leq +0$	(G96)	(298)
$X_{97} - 13Y_{97} \leq +0$	(G97)	(299)

$X_{98} - 20Y_{98} \leq +0$	(G98)	(300)
$X_{99} - 9Y_{99} \leq +0$	(G99)	(301)
$X_{100} - 7Y_{100} \leq +0$	(G100)	(302)
$X_{101} - 18Y_{101} \leq +0$	(G101)	(303)
$X_{102} - 14Y_{102} \leq +0$	(G102)	(304)
$X_{103} - 22Y_{103} \leq +0$	(G103)	(305)
$X_{104} - 25Y_{104} \leq +0$	(G104)	(306)
$X_{105} - 25Y_{105} \leq +0$	(G105)	(307)
$X_{106} - 11Y_{106} \leq +0$	(G106)	(308)
$X_{107} - 8Y_{107} \leq +0$	(G107)	(309)
$X_{108} - 6Y_{108} \leq +0$	(G108)	(310)
$X_{109} - 10Y_{109} \leq +0$	(G109)	(311)
$X_{110} - 10Y_{110} \leq +0$	(G110)	(312)
$X_{111} - 10Y_{111} \leq +0$	(G111)	(313)
$X_{112} - 10Y_{112} \leq +0$	(G112)	(314)
$X_{113} - 4Y_{113} \leq +0$	(G113)	(315)
$X_{114} - 10Y_{114} \leq +0$	(G114)	(316)
$X_{115} - 10Y_{115} \leq +0$	(G115)	(317)
$X_{116} - 10Y_{116} \leq +0$	(G116)	(318)
$X_{117} - 9Y_{117} \leq +0$	(G117)	(319)
$X_{118} - 7Y_{118} \leq +0$	(G118)	(320)
$X_{119} - 10Y_{119} \leq +0$	(G119)	(321)
$X_{120} - 10Y_{120} \leq +0$	(G120)	(322)
$X_{121} - 10Y_{121} \leq +0$	(G121)	(323)
$X_{122} - 10Y_{122} \leq +0$	(G122)	(324)
$X_{123} - 10Y_{123} \leq +0$	(G123)	(325)
$X_{124} - 10Y_{124} \leq +0$	(G124)	(326)
$X_{125} - 8Y_{125} \leq +0$	(G125)	(327)
$X_{126} - 6Y_{126} \leq +0$	(G126)	(328)
$X_{127} - 13Y_{127} \leq +0$	(G127)	(329)
$X_{128} - 16Y_{128} \leq +0$	(G128)	(330)
$X_{129} - 11Y_{129} \leq +0$	(G129)	(331)
$X_{130} - 16Y_{130} \leq +0$	(G130)	(332)
$X_{131} - 4Y_{131} \leq +0$	(G131)	(333)
$X_{132} - 16Y_{132} \leq +0$	(G132)	(334)
$X_{133} - 13Y_{133} \leq +0$	(G133)	(335)
$X_{134} - 16Y_{134} \leq +0$	(G134)	(336)
$X_{135} - 9Y_{135} \leq +0$	(G135)	(337)
$X_{136} - 7Y_{136} \leq +0$	(G136)	(338)
$X_{137} - 16Y_{137} \leq +0$	(G137)	(339)
$X_{138} - 14Y_{138} \leq +0$	(G138)	(340)
$X_{139} - 16Y_{139} \leq +0$	(G139)	(341)

$X_{140} - 16Y_{140} \leq +0$	(G140)	(342)
$X_{141} - 16Y_{141} \leq +0$	(G141)	(343)
$X_{142} - 11Y_{142} \leq +0$	(G142)	(344)
$X_{143} - 8Y_{143} \leq +0$	(G143)	(345)
$X_{144} - 6Y_{144} \leq +0$	(G144)	(346)
$X_{145} - 13Y_{145} \leq +0$	(G145)	(347)
$X_{146} - 17Y_{146} \leq +0$	(G146)	(348)
$X_{147} - 11Y_{147} \leq +0$	(G147)	(349)
$X_{148} - 17Y_{148} \leq +0$	(G148)	(350)
$X_{149} - 4Y_{149} \leq +0$	(G149)	(351)
$X_{150} - 17Y_{150} \leq +0$	(G150)	(352)
$X_{151} - 13Y_{151} \leq +0$	(G151)	(353)
$X_{152} - 17Y_{152} \leq +0$	(G152)	(354)
$X_{153} - 9Y_{153} \leq +0$	(G153)	(355)
$X_{154} - 7Y_{154} \leq +0$	(G154)	(356)
$X_{155} - 17Y_{155} \leq +0$	(G155)	(357)
$X_{156} - 14Y_{156} \leq +0$	(G156)	(358)
$X_{157} - 17Y_{157} \leq +0$	(G157)	(359)
$X_{158} - 17Y_{158} \leq +0$	(G158)	(360)
$X_{159} - 17Y_{159} \leq +0$	(G159)	(361)
$X_{160} - 11Y_{160} \leq +0$	(G160)	(362)
$X_{161} - 8Y_{161} \leq +0$	(G161)	(363)
$X_{162} - 6Y_{162} \leq +0$	(G162)	(364)
$X_{163} - 13Y_{163} \leq +0$	(G163)	(365)
$X_{164} - 21Y_{164} \leq +0$	(G164)	(366)
$X_{165} - 11Y_{165} \leq +0$	(G165)	(367)
$X_{166} - 20Y_{166} \leq +0$	(G166)	(368)
$X_{167} - 4Y_{167} \leq +0$	(G167)	(369)
$X_{168} - 35Y_{168} \leq +0$	(G168)	(370)
$X_{169} - 13Y_{169} \leq +0$	(G169)	(371)
$X_{170} - 20Y_{170} \leq +0$	(G170)	(372)
$X_{171} - 9Y_{171} \leq +0$	(G171)	(373)
$X_{172} - 7Y_{172} \leq +0$	(G172)	(374)
$X_{173} - 18Y_{173} \leq +0$	(G173)	(375)
$X_{174} - 14Y_{174} \leq +0$	(G174)	(376)
$X_{175} - 22Y_{175} \leq +0$	(G175)	(377)
$X_{176} - 33Y_{176} \leq +0$	(G176)	(378)
$X_{177} - 38Y_{177} \leq +0$	(G177)	(379)
$X_{178} - 11Y_{178} \leq +0$	(G178)	(380)
$X_{179} - 8Y_{179} \leq +0$	(G179)	(381)
$X_{180} - 6Y_{180} \leq +0$	(G180)	(382)
$X_{181} - 13Y_{181} \leq +0$	(G181)	(383)

$X_{182} - 21Y_{182} \leq +0$	(G182)	(384)
$X_{183} - 11Y_{183} \leq +0$	(G183)	(385)
$X_{184} - 20Y_{184} \leq +0$	(G184)	(386)
$X_{185} - 4Y_{185} \leq +0$	(G185)	(387)
$X_{186} - 22Y_{186} \leq +0$	(G186)	(388)
$X_{187} - 13Y_{187} \leq +0$	(G187)	(389)
$X_{188} - 20Y_{188} \leq +0$	(G188)	(390)
$X_{189} - 9Y_{189} \leq +0$	(G189)	(391)
$X_{190} - 7Y_{190} \leq +0$	(G190)	(392)
$X_{191} - 18Y_{191} \leq +0$	(G191)	(393)
$X_{192} - 14Y_{192} \leq +0$	(G192)	(394)
$X_{193} - 22Y_{193} \leq +0$	(G193)	(395)
$X_{194} - 22Y_{194} \leq +0$	(G194)	(396)
$X_{195} - 22Y_{195} \leq +0$	(G195)	(397)
$X_{196} - 11Y_{196} \leq +0$	(G196)	(398)
$X_{197} - 8Y_{197} \leq +0$	(G197)	(399)
$X_{198} - 6Y_{198} \leq +0$	(G198)	(400)
$X_{199} - 13Y_{199} \leq +0$	(G199)	(401)
$X_{200} - 21Y_{200} \leq +0$	(G200)	(402)
$X_{201} - 11Y_{201} \leq +0$	(G201)	(403)
$X_{202} - 20Y_{202} \leq +0$	(G202)	(404)
$X_{203} - 4Y_{203} \leq +0$	(G203)	(405)
$X_{204} - 33Y_{204} \leq +0$	(G204)	(406)
$X_{205} - 13Y_{205} \leq +0$	(G205)	(407)
$X_{206} - 20Y_{206} \leq +0$	(G206)	(408)
$X_{207} - 9Y_{207} \leq +0$	(G207)	(409)
$X_{208} - 7Y_{208} \leq +0$	(G208)	(410)
$X_{209} - 18Y_{209} \leq +0$	(G209)	(411)
$X_{210} - 14Y_{210} \leq +0$	(G210)	(412)
$X_{211} - 22Y_{211} \leq +0$	(G211)	(413)
$X_{212} - 33Y_{212} \leq +0$	(G212)	(414)
$X_{213} - 33Y_{213} \leq +0$	(G213)	(415)
$X_{214} - 11Y_{214} \leq +0$	(G214)	(416)
$X_{215} - 8Y_{215} \leq +0$	(G215)	(417)
$X_{216} - 6Y_{216} \leq +0$	(G216)	(418)
$X_{217} - 13Y_{217} \leq +0$	(G217)	(419)
$X_{218} - 21Y_{218} \leq +0$	(G218)	(420)
$X_{219} - 11Y_{219} \leq +0$	(G219)	(421)
$X_{220} - 20Y_{220} \leq +0$	(G220)	(422)
$X_{221} - 4Y_{221} \leq +0$	(G221)	(423)
$X_{222} - 22Y_{222} \leq +0$	(G222)	(424)
$X_{223} - 13Y_{223} \leq +0$	(G223)	(425)

$X_{224} - 20Y_{224} \leq +0$	(G224)	(426)
$X_{225} - 9Y_{225} \leq +0$	(G225)	(427)
$X_{226} - 7Y_{226} \leq +0$	(G226)	(428)
$X_{227} - 18Y_{227} \leq +0$	(G227)	(429)
$X_{228} - 14Y_{228} \leq +0$	(G228)	(430)
$X_{229} - 22Y_{229} \leq +0$	(G229)	(431)
$X_{230} - 22Y_{230} \leq +0$	(G230)	(432)
$X_{231} - 22Y_{231} \leq +0$	(G231)	(433)
$X_{232} - 11Y_{232} \leq +0$	(G232)	(434)
$X_{233} - 8Y_{233} \leq +0$	(G233)	(435)
$X_{234} - 6Y_{234} \leq +0$	(G234)	(436)
$X_{235} - 13Y_{235} \leq +0$	(G235)	(437)
$X_{236} - 21Y_{236} \leq +0$	(G236)	(438)
$X_{237} - 11Y_{237} \leq +0$	(G237)	(439)
$X_{238} - 20Y_{238} \leq +0$	(G238)	(440)
$X_{239} - 4Y_{239} \leq +0$	(G239)	(441)
$X_{240} - 26Y_{240} \leq +0$	(G240)	(442)
$X_{241} - 13Y_{241} \leq +0$	(G241)	(443)
$X_{242} - 20Y_{242} \leq +0$	(G242)	(444)
$X_{243} - 9Y_{243} \leq +0$	(G243)	(445)
$X_{244} - 7Y_{244} \leq +0$	(G244)	(446)
$X_{245} - 18Y_{245} \leq +0$	(G245)	(447)
$X_{246} - 14Y_{246} \leq +0$	(G246)	(448)
$X_{247} - 22Y_{247} \leq +0$	(G247)	(449)
$X_{248} - 26Y_{248} \leq +0$	(G248)	(450)
$X_{249} - 26Y_{249} \leq +0$	(G249)	(451)
$X_{250} - 11Y_{250} \leq +0$	(G250)	(452)
$X_{251} - 8Y_{251} \leq +0$	(G251)	(453)
		(454)

## 4 变量定义

### 4.1 二元变量 (252 个)

$$Y_i \in \{0, 1\}, \quad i \in \{0, 1, 2, \dots, 251\} \quad (455)$$

二元变量示例 (显示前 50 个, 共 252 个):

$Y_{250}, Y_0, Y_1, Y_2, Y_3, Y_4, Y_5, Y_6, Y_7, Y_8,$   
 $Y_9, Y_{10}, Y_{11}, Y_{12}, Y_{13}, Y_{14}, Y_{15}, Y_{16}, Y_{17}, Y_{18},$   
 $Y_{19}, Y_{20}, Y_{21}, Y_{22}, Y_{23}, Y_{24}, Y_{25}, Y_{26}, Y_{27}, Y_{28},$   
 $Y_{29}, Y_{30}, Y_{31}, Y_{32}, Y_{33}, Y_{34}, Y_{35}, Y_{36}, Y_{37}, Y_{38},$   
 $Y_{39}, Y_{40}, Y_{41}, Y_{42}, Y_{43}, Y_{44}, Y_{45}, Y_{46}, Y_{47}, Y_{48}$

... 还有 202 个二元变量

## 4.2 连续变量 (252 个)

所有连续变量均为非负实数:

$$X_j \geq 0, \quad j \in \{0, 1, 2, \dots, 251\} \quad (456)$$

**连续变量说明:** 模型包含 252 个连续决策变量，所有变量的取值范围均为非负实数域。