在本人设计的词法分析程序中，单词类别和名称，以及各自的编码如下表所示：

|  |  |  |
| --- | --- | --- |
| 单词名称 | 记忆符 | 编码 |
| const | CONSTSY | 1 |
| int | INTSY | 2 |
| char | CHARSY | 3 |
| void | VOIDSY | 4 |
| main | MAINSY | 5 |
| if | IFSY | 6 |
| do | DOSY | 7 |
| while | WHILESY | 8 |
| switch | SWITCHSY | 9 |
| case | CASESY | 10 |
| scanf | SCANFSY | 11 |
| printf | PRINTSY | 12 |
| return | RETURNSY | 13 |
| ： | COLON | 14 |
| ； | COMMA | 15 |
| ， | SEMI | 16 |
| = | EQUAL | 17 |
| + | PLUS | 18 |
| - | MINUS | 19 |
| / | DIVIDE | 20 |
| \* | STAR | 21 |
| ( | LPAR | 22 |
| ) | RPAR | 23 |
| [ | LBRACKET | 24 |
| ] | RBRACKET | 25 |
| { | LBRACE | 26 |
| } | RBRACE | 27 |
| **'** | SQUOTE | 28 |
| " | DQUOTE | 29 |
| < | SMALLER | 30 |
| <= | SMALLEREQ | 31 |
| > | BIGGER | 32 |
| >= | BIGGEREQ | 33 |
| != | NEQUAL | 34 |
| == | REALEQ | 35 |
| 无符号整数 | NUMSY | 36 |
| 单字符 | CHARASCII | 37 |
| 字符串 | STRINGSY | 38 |
| 标识符 | IDSY | 39 |

通过对测试文件“15231204\_test.txt”进行测试，程序运行结果如下：（保存到了15231204\_lexical\_result.txt中）

1 CONSTSY const

2 INTSY int

3 IDSY con\_int1

4 EQUAL =

5 PLUS +

6 NUMSY 1

7 COMMA ,

8 IDSY con\_int2

9 EQUAL =

10 MINUS -

11 NUMSY 1

12 COMMA ,

13 IDSY con\_int3

14 EQUAL =

15 NUMSY 0

16 COMMA ,

17 IDSY con\_int4

18 EQUAL =

19 NUMSY 10

20 SEMI ;

21 CONSTSY const

22 CHARSY char

23 IDSY con\_ch4

24 EQUAL =

25 CHARASCII 'a'

26 SEMI ;

27 INTSY int

28 IDSY index

29 COMMA ,

30 IDSY var\_arr

31 LBRACKET [

32 NUMSY 10

33 RBRACKET ]

34 COMMA ,

35 IDSY bigger\_input

36 SEMI ;

37 CHARSY char

38 IDSY var\_arr\_ch

39 LBRACKET [

40 NUMSY 10

41 RBRACKET ]

42 SEMI ;

43 INTSY int

44 IDSY find\_bigger

45 LPAR (

46 INTSY int

47 IDSY a

48 COMMA ,

49 INTSY int

50 IDSY b

51 RPAR )

52 LBRACE {

53 IFSY if

54 LPAR (

55 IDSY a

56 BIGGEREQ >=

57 IDSY b

58 RPAR )

59 RETURNSY return

60 LPAR (

61 IDSY a

62 RPAR )

63 SEMI ;

64 RETURNSY return

65 LPAR (

66 IDSY find\_bigger

67 LPAR (

68 IDSY a

69 PLUS +

70 NUMSY 1

71 COMMA ,

72 IDSY b

73 RPAR )

74 RPAR )

75 SEMI ;

76 RBRACE }

77 VOIDSY void

78 IDSY print\_bigger

79 LPAR (

80 RPAR )

81 LBRACE {

82 PRINTSY printf

83 LPAR (

84 STRINGSY "The bigger number is "

85 COMMA ,

86 IDSY bigger\_input

87 RPAR )

88 SEMI ;

89 RBRACE }

90 VOIDSY void

91 IDSY relation

92 LPAR (

93 INTSY int

94 IDSY a

95 COMMA ,

96 INTSY int

97 IDSY b

98 RPAR )

99 LBRACE {

100 CONSTSY const

101 IDSY sml\_eql

102 EQUAL =

103 NUMSY 0

104 COMMA ,

105 IDSY bgr\_eql

106 EQUAL =

107 NUMSY 1

108 SEMI ;

109 INTSY int

110 IDSY re

111 SEMI ;

112 IFSY if

113 LPAR (

114 IDSY a

115 SMALLEREQ <=

116 IDSY b

117 RPAR )

118 LBRACE {

119 IDSY re

120 EQUAL =

121 IDSY sml\_eql

122 SEMI ;

123 PRINTSY printf

124 LPAR (

125 STRINGSY "input3 is smaller or equal than input4"

126 RPAR )

127 SEMI ;

128 RBRACE }

129 IFSY if

130 LPAR (

131 IDSY a

132 BIGGEREQ >=

133 IDSY b

134 RPAR )

135 LBRACE {

136 IDSY re

137 EQUAL =

138 IDSY bgr\_eql

139 SEMI ;

140 PRINTSY printf

141 LPAR (

142 STRINGSY "input3 is bigger or equal than input4"

143 RPAR )

144 SEMI ;

145 RBRACE }

146 IFSY if

147 LPAR (

148 IDSY a

149 NEQUAL !=

150 IDSY b

151 RPAR )

152 LBRACE {

153 SEMI ;

154 RBRACE }

155 IFSY if

156 LPAR (

157 IDSY a

158 REALEQ ==

159 IDSY b

160 RPAR )

161 LBRACE {

162 PRINTSY printf

163 LPAR (

164 STRINGSY "input3 is equal to input4"

165 RPAR )

166 RBRACE }

167 SWITCHSY switch

168 LPAR (

169 IDSY re

170 RPAR )

171 LBRACE {

172 CASESY case

173 NUMSY 0

174 COLON :

175 LBRACE {

176 IFSY if

177 LPAR (

178 IDSY a

179 SMALLER <

180 IDSY b

181 RPAR )

182 LBRACE {

183 PRINTSY printf

184 LPAR (

185 STRINGSY "input3 is smaller than input4"

186 RPAR )

187 RBRACE }

188 RBRACE }

189 CASESY case

190 NUMSY 1

191 COLON :

192 LBRACE {

193 IFSY if

194 LPAR (

195 IDSY a

196 BIGGEREQ >=

197 IDSY b

198 RPAR )

199 LBRACE {

200 PRINTSY printf

201 LPAR (

202 STRINGSY "input3 is bigger than input4"

203 RPAR )

204 SEMI ;

205 RBRACE }

206 RBRACE }

207 RBRACE }

208 RBRACE }

209 VOIDSY void

210 MAINSY main

211 LPAR (

212 RPAR )

213 LBRACE {

214 INTSY int

215 IDSY input1

216 COMMA ,

217 IDSY input2

218 SEMI ;

219 INTSY int

220 IDSY input3

221 COMMA ,

222 IDSY input4

223 SEMI ;

224 SCANFSY scanf

225 LPAR (

226 IDSY input1

227 COMMA ,

228 IDSY input2

229 RPAR )

230 SEMI ;

231 SCANFSY scanf

232 LPAR (

233 IDSY input3

234 COMMA ,

235 IDSY input4

236 RPAR )

237 SEMI ;

238 IDSY index

239 EQUAL =

240 NUMSY 0

241 SEMI ;

242 IDSY bigger\_input

243 EQUAL =

244 IDSY find\_bigger

245 LPAR (

246 IDSY input1

247 COMMA ,

248 IDSY input2

249 RPAR )

250 SEMI ;

251 IDSY print\_bigger

252 LPAR (

253 RPAR )

254 SEMI ;

255 IDSY relation

256 LPAR (

257 IDSY input3

258 COMMA ,

259 IDSY input4

260 RPAR )

261 SEMI ;

262 PRINTSY printf

263 LPAR (

264 MINUS -

265 IDSY input3

266 PLUS +

267 IDSY input4

268 STAR \*

269 LPAR (

270 IDSY input3

271 DIVIDE /

272 MINUS -

273 NUMSY 1

274 RPAR )

275 STAR \*

276 CHARASCII 'a'

277 PLUS +

278 IDSY find\_bigger

279 LPAR (

280 IDSY input3

281 COMMA ,

282 IDSY input4

283 RPAR )

284 STAR \*

285 NUMSY 7

286 RPAR )

287 SEMI ;

288 DOSY do

289 LBRACE {

290 IDSY var\_arr

291 LBRACKET [

292 IDSY index

293 RBRACKET ]

294 EQUAL =

295 IDSY index

296 STAR \*

297 NUMSY 2

298 PLUS +

299 NUMSY 1

300 SEMI ;

301 IDSY var\_arr\_ch

302 LBRACKET [

303 IDSY index

304 RBRACKET ]

305 EQUAL =

306 IDSY con\_ch4

307 PLUS +

308 IDSY index

309 SEMI ;

310 PRINTSY printf

311 LPAR (

312 IDSY var\_arr

313 LBRACKET [

314 IDSY index

315 RBRACKET ]

316 RPAR )

317 SEMI ;

318 PRINTSY printf

319 LPAR (

320 IDSY var\_arr\_ch

321 LBRACKET [

322 IDSY index

323 RBRACKET ]

324 RPAR )

325 SEMI ;

326 IDSY index

327 EQUAL =

328 IDSY index

329 PLUS +

330 NUMSY 1

331 SEMI ;

332 RBRACE }

333 WHILESY while

334 LPAR (

335 IDSY index

336 SMALLER <

337 IDSY con\_int4

338 RPAR )

339 RBRACE }

测试结果符合预期。