

Національний технічний університет

«Київський політехнічний інститут»

Факультет інформатики і обчислювальної техніки,

Лабораторна робота № 2

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Київ-2011

Source file: ..\..\untitled Tue Oct 25 09:21:49 2011

1 ----------------------------------

2 ----------------------------------

3 -- Laba2

4 -- Matviychyk Bogdan

5 -- IO - 91

6 -- 11.10.2011

7 ----------------------------------

8 -- 1.7 b = (A\*SORT(C))

9 -- 2.20 MD = MA + MB – MC

10 -- 3.18 p = MAX(SORT(MS) + MA\*MB)

11 ----------------------------------

12 ----------------------------------

13

14 -------------------------------------------------------------------------

15

16 with Text\_IO,Ada.Integer\_Text\_IO; use Text\_IO,Ada.Integer\_Text\_IO;

17

18 package Lab2 is

19

20 N: constant integer:=7;

21

22 type TVector is array (1..n) of integer;

23 type TMatrix is array (1..n) of TVector;

24

25 procedure VectorInput (v: out TVector);

26 procedure MatrixInput (M: out TMatrix);

27 procedure VectorOutput (V: in TVector);

28 procedure MatrixOutput (M: in TMatrix);

29 procedure sortVector (v: in out TVector);

30 procedure SortMatrix (MA: in out Tmatrix);

31

32 function Func1\_7 (B,C: in TVector) return integer;

33 function Func3\_18 (MA,MB,mC: in TMatrix) return integer;

34 procedure Func2\_20 (MA,MC,MB:in TMatrix; MD: out TMAtrix);

35

36 end Lab2;

37

38 -------------------------------------------------------------------------

39 package body Lab2 is

40

41 -- procedure VectorInput

42 -- V[]=1

43 procedure VectorInput (v: out TVector) is

44

45 i: integer;

46

47 begin

48 for I in 1..n loop

49 V(i):=1;

50 end loop;

51 end VectorInput;

52

53 -- procedure MatrixInput

54 -- M[][]=1;

55 procedure MatrixInput (M: out TMatrix) is

56

57 i,j:integer;

58

59 begin

60 for I in 1..n loop

61 for J in 1..n loop

62 M(I)(J):=1;

63 end loop;

64 end loop;

65 end MatrixInput;

66

67 -- procedure VectorOutput

68 procedure VectorOutput (V: in TVector) is

69 I: integer;

70 begin

71 for I in 1..n loop

72 put(v(i));

73 end loop;

74 new\_line;

75 end VectorOutput;

76

77 -- procedure MatrixOutput

78 procedure MatrixOutput (M: in TMatrix) is

79

80 I,J: integer;

81

82 begin

83 if n<8 then

84 for I in 1..n loop

85 for J in 1..n loop

86 put(M(i)(j));

87 Put (" ");

88 end loop;

89 new\_line;

90 end loop;

91 END IF;

92 end MatrixOutput;

93

94 -- Sort Vector

95 procedure sortVector (V: in out TVector) is

96 i,j,z: Integer;

97 begin

98 for I in 1..n loop

99 for J in 1..n-1 loop

100 if v(j) > V(j+1) then

101 z:=v(j);

102 v(j):=v(j+1);

103 v(j+1):=z;

104 end if;

105 end loop;

106 end loop;

107 end SortVector;

108

109 -- Sort Matrix

110 procedure sortMatrix (ma: in out TMatrix) is

111 i,j,k,z: integer;

112 begin

113 for I in 1..n loop

114 for J in 1..n-1 loop

115 for k in 1..n-1 loop

116 if MA(j)(K) > MA(j)(k) then

117 z:=MA(j)(k);

118 MA(j)(K):=MA(J)(K+1);

119 MA(j)(K+1):=z;

120 end if;

121 end loop;

122 end loop;

123 end loop;

124 end sortMatrix;

125

126 -- function Func1

127 -- 1.7 b = (A\*SORT(C))

128

129 function Func1\_7 (B,C: in TVector)return integer is

130

131 a : integer:=0;

132 s : Integer:=0;

133

134 begin

135 -- a = (B\*C)

136 for i in 1..n loop

137 s:=b(i)\*c(i);

138 a:=a+s;

139 end loop;

140 return A;

141 end Func1\_7;

142

143 -- function Func3

144 -- 3.18 p = MAX(SORT(MS) + MA\*MB)

145

146 function Func3\_18 (MA,MB,mC: in TMatrix) return integer is

147

148 m: TMatrix;

149 S: tMatrix;

150 I,j,k: integer;

151

152 begin

153 -- M=MB\*MC

154 for i in 1..n loop

155 for j in 1..n loop

156 m(i)(j):=0;

157 for k in 1..n loop

158 M(i)(j):=M(i)(j)+ MB(i)(k) \* MC(K)(J);

159 end loop;

160 end loop;

161 end loop;

162

163 -- S = M + MA

164 for i in 1..n loop

165 for j in 1..n loop

166 s(i)(j):=M(i)(j)+mA(i)(j);

167 end loop;

168 end loop;

169 k:=S(1)(1);

170

171 -- MAX(S)

172 for i in 1..n loop

173 for j in 1..n-1 loop

174 if k <S(i)(J) then

175 k:= S(i)(j);

176 end if;

177 end loop;

178 end loop;

179 return k;

180 end Func3\_18;

181

182 -- procedure Func2

183 -- 2.20 MD = MA + MB – MC

184

185 procedure Func2\_20 (MA,MC,MB:in TMatrix; MD: out TMatrix) is

186 i,j: integer;

187 begin

188 -- MD = MA + MB – MC

189 for i in 1..n loop

190 for j in 1..n loop

191 MD(i)(j) := MA(i)(j) + MB(i)(j) ;

192 MD(i)(j) := MD(i)(j) - MC(I)(J) ;

193 end loop;

194 end loop;

195 end Func2\_20;

196 end Lab2;

197

198 ------------------------------------------------------------------------------

199

200

201 with Text\_IO,lab2,Ada.Integer\_Text\_IO; use Text\_IO,lab2,Ada.Integer\_Text\_IO;

202

203 procedure laba2 is

204

205 -- first -- 1.7 b = (A\*SORT(C))

206 task First;

207 task body First is

208 k : integer:=0;

209 s : Integer:=0;

210 i : integer;

211 a,c:TVector;

212 begin

213 New\_Line;

214 put\_line ("start funk 1 ");

215 New\_Line;

216 vectorInput(c);

217 vectorInput(a);

218 SortVector(c);

219 for i in 1..n loop

220 s:=a(i)\*c(i);

221 k:=k+s;

222 end loop;

223 put (k);

224 New\_Line;

225 Put\_line ("end funk 1");

226 New\_Line;

227 end First;

228 -- end first

229

230 -- sekond -- 2.20 MD = MA + MB – MC

231 task Sekond;

232 task body Sekond is

233 i,j: Integer;

234 mD,MA,MB,MC: TMatrix;

235 begin

236

237 New\_Line;

238 Put\_line ("start funk2 ");

239 New\_Line;

240 MAtrixInput(MD);

241 MatrixInput(MA);

242 matrixInput(MB);

243 matrixInput(MC);

244 for i in 1..n loop

245 for j in 1..n loop

246 MD(i)(j) := MA(i)(j) + MB(i)(j) ;

247 MD(i)(j) := MD(i)(j) - MC(I)(J) ;

248 end loop;

249 end loop;

250 MatrixOutput(mD);

251 New\_Line;

252 put\_line("end funk2");

253 New\_Line;

254 end sekond;

255 -- end sekond --

256

257 -- third -- 3.18 p = MAX(SORT(MS) + MA\*MB)

258 task third;

259 task body third is

260

261 m: TMatrix;

262 S: tMatrix;

263 I,j,k: integer;

264 mA,MB,MC: tMatrix;

265 begin

266 New\_Line;

267 Put\_line ("start funk3 ");

268 New\_Line;

269 MatrixInput(mA);

270 matrixInput(MB);

271 matrixInput(MC);

272 SortMatrix(MA);

273 -- M=MB\*MC

274 for i in 1..n loop

275 for j in 1..n loop

276 m(i)(j):=0;

277 for k in 1..n loop

278 M(i)(j):=M(i)(j)+ MB(i)(k) \* MC(K)(J);

279 end loop;

280 end loop;

281 end loop;

282

283 -- S = M + MA

284 for i in 1..n loop

285 for j in 1..n loop

286 s(i)(j):=M(i)(j)+mA(i)(j);

287 end loop;

288 end loop;

289 k:=S(1)(1);

290

291 -- MAX(S)

292 for i in 1..n loop

293 for j in 1..n-1 loop

294 if k <S(i)(J) then

295 k:= S(i)(j);

296 end if;

297 end loop;

298 end loop;

299 Put (k);

300 New\_Line;

301 put\_line("end funk3");

302 New\_Line;

303 end third;

304 -- end third--

305

306 begin

307 New\_Line;

308 put\_Line ("Laba2");

309 New\_Line;

310 end laba2;

311

312 -------------------------------------------------------------------------------