

| age | sex | cp | trtbps | chol | fbs | restecg |
|-----|-----|----|--------|------|-----|---------|
| 63  | 1   | 3  | 145    | 233  | 1   | 0       |
| 37  | 1   | 2  | 130    | 250  | 0   | 1       |
| 41  | 0   | 1  | 130    | 204  | 0   | 0       |
| 56  | 1   | 1  | 120    | 236  | 0   | 1       |
| 57  | 0   | 0  | 120    | 354  | 0   | 1       |
| 57  | 1   | 0  | 140    | 192  | 0   | 1       |
| 56  | 0   | 1  | 140    | 294  | 0   | 0       |
| 44  | 1   | 1  | 120    | 263  | 0   | 1       |
| 52  | 1   | 2  | 172    | 199  | 1   | 1       |
| 57  | 1   | 2  | 150    | 168  | 0   | 1       |
| 54  | 1   | 0  | 140    | 239  | 0   | 1       |
| 48  | 0   | 2  | 130    | 275  | 0   | 1       |
| 49  | 1   | 1  | 130    | 266  | 0   | 1       |
| 64  | 1   | 3  | 110    | 211  | 0   | 0       |
| 58  | 0   | 3  | 150    | 283  | 1   | 0       |
| 50  | 0   | 2  | 120    | 219  | 0   | 1       |
| 58  | 0   | 2  | 120    | 340  | 0   | 1       |
| 66  | 0   | 3  | 150    | 226  | 0   | 1       |
| 43  | 1   | 0  | 150    | 247  | 0   | 1       |
| 69  | 0   | 3  | 140    | 239  | 0   | 1       |
| 59  | 1   | 0  | 135    | 234  | 0   | 1       |
| 44  | 1   | 2  | 130    | 233  | 0   | 1       |
| 42  | 1   | 0  | 140    | 226  | 0   | 1       |
| 61  | 1   | 2  | 150    | 243  | 1   | 1       |
| 40  | 1   | 3  | 140    | 199  | 0   | 1       |
| 71  | 0   | 1  | 160    | 302  | 0   | 1       |
| 59  | 1   | 2  | 150    | 212  | 1   | 1       |
| 51  | 1   | 2  | 110    | 175  | 0   | 1       |
| 65  | 0   | 2  | 140    | 417  | 1   | 0       |
| 53  | 1   | 2  | 130    | 197  | 1   | 0       |
| 41  | 0   | 1  | 105    | 198  | 0   | 1       |
| 65  | 1   | 0  | 120    | 177  | 0   | 1       |
| 44  | 1   | 1  | 130    | 219  | 0   | 0       |
| 54  | 1   | 2  | 125    | 273  | 0   | 0       |
| 51  | 1   | 3  | 125    | 213  | 0   | 0       |
| 46  | 0   | 2  | 142    | 177  | 0   | 0       |
| 54  | 0   | 2  | 135    | 304  | 1   | 1       |
| 54  | 1   | 2  | 150    | 232  | 0   | 0       |
| 65  | 0   | 2  | 155    | 269  | 0   | 1       |
| 65  | 0   | 2  | 160    | 360  | 0   | 0       |

|    |   |   |     |     |   |   |
|----|---|---|-----|-----|---|---|
| 51 | 0 | 2 | 140 | 308 | 0 | 0 |
| 48 | 1 | 1 | 130 | 245 | 0 | 0 |
| 45 | 1 | 0 | 104 | 208 | 0 | 0 |
| 53 | 0 | 0 | 130 | 264 | 0 | 0 |
| 39 | 1 | 2 | 140 | 321 | 0 | 0 |
| 52 | 1 | 1 | 120 | 325 | 0 | 1 |
| 44 | 1 | 2 | 140 | 235 | 0 | 0 |
| 47 | 1 | 2 | 138 | 257 | 0 | 0 |
| 53 | 0 | 2 | 128 | 216 | 0 | 0 |
| 53 | 0 | 0 | 138 | 234 | 0 | 0 |
| 51 | 0 | 2 | 130 | 256 | 0 | 0 |
| 66 | 1 | 0 | 120 | 302 | 0 | 0 |
| 62 | 1 | 2 | 130 | 231 | 0 | 1 |
| 44 | 0 | 2 | 108 | 141 | 0 | 1 |
| 63 | 0 | 2 | 135 | 252 | 0 | 0 |
| 52 | 1 | 1 | 134 | 201 | 0 | 1 |
| 48 | 1 | 0 | 122 | 222 | 0 | 0 |
| 45 | 1 | 0 | 115 | 260 | 0 | 0 |
| 34 | 1 | 3 | 118 | 182 | 0 | 0 |
| 57 | 0 | 0 | 128 | 303 | 0 | 0 |
| 71 | 0 | 2 | 110 | 265 | 1 | 0 |
| 54 | 1 | 1 | 108 | 309 | 0 | 1 |
| 52 | 1 | 3 | 118 | 186 | 0 | 0 |
| 41 | 1 | 1 | 135 | 203 | 0 | 1 |
| 58 | 1 | 2 | 140 | 211 | 1 | 0 |
| 35 | 0 | 0 | 138 | 183 | 0 | 1 |
| 51 | 1 | 2 | 100 | 222 | 0 | 1 |
| 45 | 0 | 1 | 130 | 234 | 0 | 0 |
| 44 | 1 | 1 | 120 | 220 | 0 | 1 |
| 62 | 0 | 0 | 124 | 209 | 0 | 1 |
| 54 | 1 | 2 | 120 | 258 | 0 | 0 |
| 51 | 1 | 2 | 94  | 227 | 0 | 1 |
| 29 | 1 | 1 | 130 | 204 | 0 | 0 |
| 51 | 1 | 0 | 140 | 261 | 0 | 0 |
| 43 | 0 | 2 | 122 | 213 | 0 | 1 |
| 55 | 0 | 1 | 135 | 250 | 0 | 0 |
| 51 | 1 | 2 | 125 | 245 | 1 | 0 |
| 59 | 1 | 1 | 140 | 221 | 0 | 1 |
| 52 | 1 | 1 | 128 | 205 | 1 | 1 |
| 58 | 1 | 2 | 105 | 240 | 0 | 0 |
| 41 | 1 | 2 | 112 | 250 | 0 | 1 |

|    |   |   |     |     |   |   |
|----|---|---|-----|-----|---|---|
| 45 | 1 | 1 | 128 | 308 | 0 | 0 |
| 60 | 0 | 2 | 102 | 318 | 0 | 1 |
| 52 | 1 | 3 | 152 | 298 | 1 | 1 |
| 42 | 0 | 0 | 102 | 265 | 0 | 0 |
| 67 | 0 | 2 | 115 | 564 | 0 | 0 |
| 68 | 1 | 2 | 118 | 277 | 0 | 1 |
| 46 | 1 | 1 | 101 | 197 | 1 | 1 |
| 54 | 0 | 2 | 110 | 214 | 0 | 1 |
| 58 | 0 | 0 | 100 | 248 | 0 | 0 |
| 48 | 1 | 2 | 124 | 255 | 1 | 1 |
| 57 | 1 | 0 | 132 | 207 | 0 | 1 |
| 52 | 1 | 2 | 138 | 223 | 0 | 1 |
| 54 | 0 | 1 | 132 | 288 | 1 | 0 |
| 45 | 0 | 1 | 112 | 160 | 0 | 1 |
| 53 | 1 | 0 | 142 | 226 | 0 | 0 |
| 62 | 0 | 0 | 140 | 394 | 0 | 0 |
| 52 | 1 | 0 | 108 | 233 | 1 | 1 |
| 43 | 1 | 2 | 130 | 315 | 0 | 1 |
| 53 | 1 | 2 | 130 | 246 | 1 | 0 |
| 42 | 1 | 3 | 148 | 244 | 0 | 0 |
| 59 | 1 | 3 | 178 | 270 | 0 | 0 |
| 63 | 0 | 1 | 140 | 195 | 0 | 1 |
| 42 | 1 | 2 | 120 | 240 | 1 | 1 |
| 50 | 1 | 2 | 129 | 196 | 0 | 1 |
| 68 | 0 | 2 | 120 | 211 | 0 | 0 |
| 69 | 1 | 3 | 160 | 234 | 1 | 0 |
| 45 | 0 | 0 | 138 | 236 | 0 | 0 |
| 50 | 0 | 1 | 120 | 244 | 0 | 1 |
| 50 | 0 | 0 | 110 | 254 | 0 | 0 |
| 64 | 0 | 0 | 180 | 325 | 0 | 1 |
| 57 | 1 | 2 | 150 | 126 | 1 | 1 |
| 64 | 0 | 2 | 140 | 313 | 0 | 1 |
| 43 | 1 | 0 | 110 | 211 | 0 | 1 |
| 55 | 1 | 1 | 130 | 262 | 0 | 1 |
| 37 | 0 | 2 | 120 | 215 | 0 | 1 |
| 41 | 1 | 2 | 130 | 214 | 0 | 0 |
| 56 | 1 | 3 | 120 | 193 | 0 | 0 |
| 46 | 0 | 1 | 105 | 204 | 0 | 1 |
| 46 | 0 | 0 | 138 | 243 | 0 | 0 |
| 64 | 0 | 0 | 130 | 303 | 0 | 1 |
| 59 | 1 | 0 | 138 | 271 | 0 | 0 |

|    |   |   |     |     |   |   |
|----|---|---|-----|-----|---|---|
| 41 | 0 | 2 | 112 | 268 | 0 | 0 |
| 54 | 0 | 2 | 108 | 267 | 0 | 0 |
| 39 | 0 | 2 | 94  | 199 | 0 | 1 |
| 34 | 0 | 1 | 118 | 210 | 0 | 1 |
| 47 | 1 | 0 | 112 | 204 | 0 | 1 |
| 67 | 0 | 2 | 152 | 277 | 0 | 1 |
| 52 | 0 | 2 | 136 | 196 | 0 | 0 |
| 74 | 0 | 1 | 120 | 269 | 0 | 0 |
| 54 | 0 | 2 | 160 | 201 | 0 | 1 |
| 49 | 0 | 1 | 134 | 271 | 0 | 1 |
| 42 | 1 | 1 | 120 | 295 | 0 | 1 |
| 41 | 1 | 1 | 110 | 235 | 0 | 1 |
| 41 | 0 | 1 | 126 | 306 | 0 | 1 |
| 49 | 0 | 0 | 130 | 269 | 0 | 1 |
| 60 | 0 | 2 | 120 | 178 | 1 | 1 |
| 62 | 1 | 1 | 128 | 208 | 1 | 0 |
| 57 | 1 | 0 | 110 | 201 | 0 | 1 |
| 64 | 1 | 0 | 128 | 263 | 0 | 1 |
| 51 | 0 | 2 | 120 | 295 | 0 | 0 |
| 43 | 1 | 0 | 115 | 303 | 0 | 1 |
| 42 | 0 | 2 | 120 | 209 | 0 | 1 |
| 67 | 0 | 0 | 106 | 223 | 0 | 1 |
| 76 | 0 | 2 | 140 | 197 | 0 | 2 |
| 70 | 1 | 1 | 156 | 245 | 0 | 0 |
| 44 | 0 | 2 | 118 | 242 | 0 | 1 |
| 60 | 0 | 3 | 150 | 240 | 0 | 1 |
| 44 | 1 | 2 | 120 | 226 | 0 | 1 |
| 42 | 1 | 2 | 130 | 180 | 0 | 1 |
| 66 | 1 | 0 | 160 | 228 | 0 | 0 |
| 71 | 0 | 0 | 112 | 149 | 0 | 1 |
| 64 | 1 | 3 | 170 | 227 | 0 | 0 |
| 66 | 0 | 2 | 146 | 278 | 0 | 0 |
| 39 | 0 | 2 | 138 | 220 | 0 | 1 |
| 58 | 0 | 0 | 130 | 197 | 0 | 1 |
| 47 | 1 | 2 | 130 | 253 | 0 | 1 |
| 35 | 1 | 1 | 122 | 192 | 0 | 1 |
| 58 | 1 | 1 | 125 | 220 | 0 | 1 |
| 56 | 1 | 1 | 130 | 221 | 0 | 0 |
| 56 | 1 | 1 | 120 | 240 | 0 | 1 |
| 55 | 0 | 1 | 132 | 342 | 0 | 1 |
| 41 | 1 | 1 | 120 | 157 | 0 | 1 |

|    |   |   |     |     |   |   |
|----|---|---|-----|-----|---|---|
| 38 | 1 | 2 | 138 | 175 | 0 | 1 |
| 38 | 1 | 2 | 138 | 175 | 0 | 1 |
| 67 | 1 | 0 | 160 | 286 | 0 | 0 |
| 67 | 1 | 0 | 120 | 229 | 0 | 0 |
| 62 | 0 | 0 | 140 | 268 | 0 | 0 |
| 63 | 1 | 0 | 130 | 254 | 0 | 0 |
| 53 | 1 | 0 | 140 | 203 | 1 | 0 |
| 56 | 1 | 2 | 130 | 256 | 1 | 0 |
| 48 | 1 | 1 | 110 | 229 | 0 | 1 |
| 58 | 1 | 1 | 120 | 284 | 0 | 0 |
| 58 | 1 | 2 | 132 | 224 | 0 | 0 |
| 60 | 1 | 0 | 130 | 206 | 0 | 0 |
| 40 | 1 | 0 | 110 | 167 | 0 | 0 |
| 60 | 1 | 0 | 117 | 230 | 1 | 1 |
| 64 | 1 | 2 | 140 | 335 | 0 | 1 |
| 43 | 1 | 0 | 120 | 177 | 0 | 0 |
| 57 | 1 | 0 | 150 | 276 | 0 | 0 |
| 55 | 1 | 0 | 132 | 353 | 0 | 1 |
| 65 | 0 | 0 | 150 | 225 | 0 | 0 |
| 61 | 0 | 0 | 130 | 330 | 0 | 0 |
| 58 | 1 | 2 | 112 | 230 | 0 | 0 |
| 50 | 1 | 0 | 150 | 243 | 0 | 0 |
| 44 | 1 | 0 | 112 | 290 | 0 | 0 |
| 60 | 1 | 0 | 130 | 253 | 0 | 1 |
| 54 | 1 | 0 | 124 | 266 | 0 | 0 |
| 50 | 1 | 2 | 140 | 233 | 0 | 1 |
| 41 | 1 | 0 | 110 | 172 | 0 | 0 |
| 51 | 0 | 0 | 130 | 305 | 0 | 1 |
| 58 | 1 | 0 | 128 | 216 | 0 | 0 |
| 54 | 1 | 0 | 120 | 188 | 0 | 1 |
| 60 | 1 | 0 | 145 | 282 | 0 | 0 |
| 60 | 1 | 2 | 140 | 185 | 0 | 0 |
| 59 | 1 | 0 | 170 | 326 | 0 | 0 |
| 46 | 1 | 2 | 150 | 231 | 0 | 1 |
| 67 | 1 | 0 | 125 | 254 | 1 | 1 |
| 62 | 1 | 0 | 120 | 267 | 0 | 1 |
| 65 | 1 | 0 | 110 | 248 | 0 | 0 |
| 44 | 1 | 0 | 110 | 197 | 0 | 0 |
| 60 | 1 | 0 | 125 | 258 | 0 | 0 |
| 58 | 1 | 0 | 150 | 270 | 0 | 0 |
| 68 | 1 | 2 | 180 | 274 | 1 | 0 |

|    |   |   |     |     |   |   |
|----|---|---|-----|-----|---|---|
| 62 | 0 | 0 | 160 | 164 | 0 | 0 |
| 52 | 1 | 0 | 128 | 255 | 0 | 1 |
| 59 | 1 | 0 | 110 | 239 | 0 | 0 |
| 60 | 0 | 0 | 150 | 258 | 0 | 0 |
| 49 | 1 | 2 | 120 | 188 | 0 | 1 |
| 59 | 1 | 0 | 140 | 177 | 0 | 1 |
| 57 | 1 | 2 | 128 | 229 | 0 | 0 |
| 61 | 1 | 0 | 120 | 260 | 0 | 1 |
| 39 | 1 | 0 | 118 | 219 | 0 | 1 |
| 61 | 0 | 0 | 145 | 307 | 0 | 0 |
| 56 | 1 | 0 | 125 | 249 | 1 | 0 |
| 43 | 0 | 0 | 132 | 341 | 1 | 0 |
| 62 | 0 | 2 | 130 | 263 | 0 | 1 |
| 63 | 1 | 0 | 130 | 330 | 1 | 0 |
| 65 | 1 | 0 | 135 | 254 | 0 | 0 |
| 48 | 1 | 0 | 130 | 256 | 1 | 0 |
| 63 | 0 | 0 | 150 | 407 | 0 | 0 |
| 55 | 1 | 0 | 140 | 217 | 0 | 1 |
| 65 | 1 | 3 | 138 | 282 | 1 | 0 |
| 56 | 0 | 0 | 200 | 288 | 1 | 0 |
| 54 | 1 | 0 | 110 | 239 | 0 | 1 |
| 70 | 1 | 0 | 145 | 174 | 0 | 1 |
| 62 | 1 | 1 | 120 | 281 | 0 | 0 |
| 35 | 1 | 0 | 120 | 198 | 0 | 1 |
| 59 | 1 | 3 | 170 | 288 | 0 | 0 |
| 64 | 1 | 2 | 125 | 309 | 0 | 1 |
| 47 | 1 | 2 | 108 | 243 | 0 | 1 |
| 57 | 1 | 0 | 165 | 289 | 1 | 0 |
| 55 | 1 | 0 | 160 | 289 | 0 | 0 |
| 64 | 1 | 0 | 120 | 246 | 0 | 0 |
| 70 | 1 | 0 | 130 | 322 | 0 | 0 |
| 51 | 1 | 0 | 140 | 299 | 0 | 1 |
| 58 | 1 | 0 | 125 | 300 | 0 | 0 |
| 60 | 1 | 0 | 140 | 293 | 0 | 0 |
| 77 | 1 | 0 | 125 | 304 | 0 | 0 |
| 35 | 1 | 0 | 126 | 282 | 0 | 0 |
| 70 | 1 | 2 | 160 | 269 | 0 | 1 |
| 59 | 0 | 0 | 174 | 249 | 0 | 1 |
| 64 | 1 | 0 | 145 | 212 | 0 | 0 |
| 57 | 1 | 0 | 152 | 274 | 0 | 1 |
| 56 | 1 | 0 | 132 | 184 | 0 | 0 |

|    |   |   |     |     |   |   |
|----|---|---|-----|-----|---|---|
| 48 | 1 | 0 | 124 | 274 | 0 | 0 |
| 56 | 0 | 0 | 134 | 409 | 0 | 0 |
| 66 | 1 | 1 | 160 | 246 | 0 | 1 |
| 54 | 1 | 1 | 192 | 283 | 0 | 0 |
| 69 | 1 | 2 | 140 | 254 | 0 | 0 |
| 51 | 1 | 0 | 140 | 298 | 0 | 1 |
| 43 | 1 | 0 | 132 | 247 | 1 | 0 |
| 62 | 0 | 0 | 138 | 294 | 1 | 1 |
| 67 | 1 | 0 | 100 | 299 | 0 | 0 |
| 59 | 1 | 3 | 160 | 273 | 0 | 0 |
| 45 | 1 | 0 | 142 | 309 | 0 | 0 |
| 58 | 1 | 0 | 128 | 259 | 0 | 0 |
| 50 | 1 | 0 | 144 | 200 | 0 | 0 |
| 62 | 0 | 0 | 150 | 244 | 0 | 1 |
| 38 | 1 | 3 | 120 | 231 | 0 | 1 |
| 66 | 0 | 0 | 178 | 228 | 1 | 1 |
| 52 | 1 | 0 | 112 | 230 | 0 | 1 |
| 53 | 1 | 0 | 123 | 282 | 0 | 1 |
| 63 | 0 | 0 | 108 | 269 | 0 | 1 |
| 54 | 1 | 0 | 110 | 206 | 0 | 0 |
| 66 | 1 | 0 | 112 | 212 | 0 | 0 |
| 55 | 0 | 0 | 180 | 327 | 0 | 2 |
| 49 | 1 | 2 | 118 | 149 | 0 | 0 |
| 54 | 1 | 0 | 122 | 286 | 0 | 0 |
| 56 | 1 | 0 | 130 | 283 | 1 | 0 |
| 46 | 1 | 0 | 120 | 249 | 0 | 0 |
| 61 | 1 | 3 | 134 | 234 | 0 | 1 |
| 67 | 1 | 0 | 120 | 237 | 0 | 1 |
| 58 | 1 | 0 | 100 | 234 | 0 | 1 |
| 47 | 1 | 0 | 110 | 275 | 0 | 0 |
| 52 | 1 | 0 | 125 | 212 | 0 | 1 |
| 58 | 1 | 0 | 146 | 218 | 0 | 1 |
| 57 | 1 | 1 | 124 | 261 | 0 | 1 |
| 58 | 0 | 1 | 136 | 319 | 1 | 0 |
| 61 | 1 | 0 | 138 | 166 | 0 | 0 |
| 42 | 1 | 0 | 136 | 315 | 0 | 1 |
| 52 | 1 | 0 | 128 | 204 | 1 | 1 |
| 59 | 1 | 2 | 126 | 218 | 1 | 1 |
| 40 | 1 | 0 | 152 | 223 | 0 | 1 |
| 61 | 1 | 0 | 140 | 207 | 0 | 0 |
| 46 | 1 | 0 | 140 | 311 | 0 | 1 |

|    |   |   |     |     |   |   |
|----|---|---|-----|-----|---|---|
| 59 | 1 | 3 | 134 | 204 | 0 | 1 |
| 57 | 1 | 1 | 154 | 232 | 0 | 0 |
| 57 | 1 | 0 | 110 | 335 | 0 | 1 |
| 55 | 0 | 0 | 128 | 205 | 0 | 2 |
| 61 | 1 | 0 | 148 | 203 | 0 | 1 |
| 58 | 1 | 0 | 114 | 318 | 0 | 2 |
| 58 | 0 | 0 | 170 | 225 | 1 | 0 |
| 67 | 1 | 2 | 152 | 212 | 0 | 0 |
| 44 | 1 | 0 | 120 | 169 | 0 | 1 |
| 63 | 1 | 0 | 140 | 187 | 0 | 0 |
| 63 | 0 | 0 | 124 | 197 | 0 | 1 |
| 59 | 1 | 0 | 164 | 176 | 1 | 0 |
| 57 | 0 | 0 | 140 | 241 | 0 | 1 |
| 45 | 1 | 3 | 110 | 264 | 0 | 1 |
| 68 | 1 | 0 | 144 | 193 | 1 | 1 |
| 57 | 1 | 0 | 130 | 131 | 0 | 1 |
| 57 | 0 | 1 | 130 | 236 | 0 | 0 |



| thalachh | exng | oldpeak | slp | caa | thall | output |
|----------|------|---------|-----|-----|-------|--------|
| 150      | 0    | 2,3     | 0   | 0   | 1     | 1      |
| 187      | 0    | 3,5     | 0   | 0   | 2     | 1      |
| 172      | 0    | 1,4     | 2   | 0   | 2     | 1      |
| 178      | 0    | 0,8     | 2   | 0   | 2     | 1      |
| 163      | 1    | 0,6     | 2   | 0   | 2     | 1      |
| 148      | 0    | 0,4     | 1   | 0   | 1     | 1      |
| 153      | 0    | 1,3     | 1   | 0   | 2     | 1      |
| 173      | 0    | 0       | 2   | 0   | 3     | 1      |
| 162      | 0    | 0,5     | 2   | 0   | 3     | 1      |
| 174      | 0    | 1,6     | 2   | 0   | 2     | 1      |
| 160      | 0    | 1,2     | 2   | 0   | 2     | 1      |
| 139      | 0    | 0,2     | 2   | 0   | 2     | 1      |
| 171      | 0    | 0,6     | 2   | 0   | 2     | 1      |
| 144      | 1    | 1,8     | 1   | 0   | 2     | 1      |
| 162      | 0    | 1       | 2   | 0   | 2     | 1      |
| 158      | 0    | 1,6     | 1   | 0   | 2     | 1      |
| 172      | 0    | 0       | 2   | 0   | 2     | 1      |
| 114      | 0    | 2,6     | 0   | 0   | 2     | 1      |
| 171      | 0    | 1,5     | 2   | 0   | 2     | 1      |
| 151      | 0    | 1,8     | 2   | 2   | 2     | 1      |
| 161      | 0    | 0,5     | 1   | 0   | 3     | 1      |
| 179      | 1    | 0,4     | 2   | 0   | 2     | 1      |
| 178      | 0    | 0       | 2   | 0   | 2     | 1      |
| 137      | 1    | 1       | 1   | 0   | 2     | 1      |
| 178      | 1    | 1,4     | 2   | 0   | 3     | 1      |
| 162      | 0    | 0,4     | 2   | 2   | 2     | 1      |
| 157      | 0    | 1,6     | 2   | 0   | 2     | 1      |
| 123      | 0    | 0,6     | 2   | 0   | 2     | 1      |
| 157      | 0    | 0,8     | 2   | 1   | 2     | 1      |
| 152      | 0    | 1,2     | 0   | 0   | 2     | 1      |
| 168      | 0    | 0       | 2   | 1   | 2     | 1      |
| 140      | 0    | 0,4     | 2   | 0   | 3     | 1      |
| 188      | 0    | 0       | 2   | 0   | 2     | 1      |
| 152      | 0    | 0,5     | 0   | 1   | 2     | 1      |
| 125      | 1    | 1,4     | 2   | 1   | 2     | 1      |
| 160      | 1    | 1,4     | 0   | 0   | 2     | 1      |
| 170      | 0    | 0       | 2   | 0   | 2     | 1      |
| 165      | 0    | 1,6     | 2   | 0   | 3     | 1      |
| 148      | 0    | 0,8     | 2   | 0   | 2     | 1      |
| 151      | 0    | 0,8     | 2   | 0   | 2     | 1      |

|     |   |     |   |   |   |   |
|-----|---|-----|---|---|---|---|
| 142 | 0 | 1,5 | 2 | 1 | 2 | 1 |
| 180 | 0 | 0,2 | 1 | 0 | 2 | 1 |
| 148 | 1 | 3   | 1 | 0 | 2 | 1 |
| 143 | 0 | 0,4 | 1 | 0 | 2 | 1 |
| 182 | 0 | 0   | 2 | 0 | 2 | 1 |
| 172 | 0 | 0,2 | 2 | 0 | 2 | 1 |
| 180 | 0 | 0   | 2 | 0 | 2 | 1 |
| 156 | 0 | 0   | 2 | 0 | 2 | 1 |
| 115 | 0 | 0   | 2 | 0 | 0 | 1 |
| 160 | 0 | 0   | 2 | 0 | 2 | 1 |
| 149 | 0 | 0,5 | 2 | 0 | 2 | 1 |
| 151 | 0 | 0,4 | 1 | 0 | 2 | 1 |
| 146 | 0 | 1,8 | 1 | 3 | 3 | 1 |
| 175 | 0 | 0,6 | 1 | 0 | 2 | 1 |
| 172 | 0 | 0   | 2 | 0 | 2 | 1 |
| 158 | 0 | 0,8 | 2 | 1 | 2 | 1 |
| 186 | 0 | 0   | 2 | 0 | 2 | 1 |
| 185 | 0 | 0   | 2 | 0 | 2 | 1 |
| 174 | 0 | 0   | 2 | 0 | 2 | 1 |
| 159 | 0 | 0   | 2 | 1 | 2 | 1 |
| 130 | 0 | 0   | 2 | 1 | 2 | 1 |
| 156 | 0 | 0   | 2 | 0 | 3 | 1 |
| 190 | 0 | 0   | 1 | 0 | 1 | 1 |
| 132 | 0 | 0   | 1 | 0 | 1 | 1 |
| 165 | 0 | 0   | 2 | 0 | 2 | 1 |
| 182 | 0 | 1,4 | 2 | 0 | 2 | 1 |
| 143 | 1 | 1,2 | 1 | 0 | 2 | 1 |
| 175 | 0 | 0,6 | 1 | 0 | 2 | 1 |
| 170 | 0 | 0   | 2 | 0 | 2 | 1 |
| 163 | 0 | 0   | 2 | 0 | 2 | 1 |
| 147 | 0 | 0,4 | 1 | 0 | 3 | 1 |
| 154 | 1 | 0   | 2 | 1 | 3 | 1 |
| 202 | 0 | 0   | 2 | 0 | 2 | 1 |
| 186 | 1 | 0   | 2 | 0 | 2 | 1 |
| 165 | 0 | 0,2 | 1 | 0 | 2 | 1 |
| 161 | 0 | 1,4 | 1 | 0 | 2 | 1 |
| 166 | 0 | 2,4 | 1 | 0 | 2 | 1 |
| 164 | 1 | 0   | 2 | 0 | 2 | 1 |
| 184 | 0 | 0   | 2 | 0 | 2 | 1 |
| 154 | 1 | 0,6 | 1 | 0 | 3 | 1 |
| 179 | 0 | 0   | 2 | 0 | 2 | 1 |

|     |   |     |   |   |   |   |
|-----|---|-----|---|---|---|---|
| 170 | 0 | 0   | 2 | 0 | 2 | 1 |
| 160 | 0 | 0   | 2 | 1 | 2 | 1 |
| 178 | 0 | 1,2 | 1 | 0 | 3 | 1 |
| 122 | 0 | 0,6 | 1 | 0 | 2 | 1 |
| 160 | 0 | 1,6 | 1 | 0 | 3 | 1 |
| 151 | 0 | 1   | 2 | 1 | 3 | 1 |
| 156 | 0 | 0   | 2 | 0 | 3 | 1 |
| 158 | 0 | 1,6 | 1 | 0 | 2 | 1 |
| 122 | 0 | 1   | 1 | 0 | 2 | 1 |
| 175 | 0 | 0   | 2 | 2 | 2 | 1 |
| 168 | 1 | 0   | 2 | 0 | 3 | 1 |
| 169 | 0 | 0   | 2 | 4 | 2 | 1 |
| 159 | 1 | 0   | 2 | 1 | 2 | 1 |
| 138 | 0 | 0   | 1 | 0 | 2 | 1 |
| 111 | 1 | 0   | 2 | 0 | 3 | 1 |
| 157 | 0 | 1,2 | 1 | 0 | 2 | 1 |
| 147 | 0 | 0,1 | 2 | 3 | 3 | 1 |
| 162 | 0 | 1,9 | 2 | 1 | 2 | 1 |
| 173 | 0 | 0   | 2 | 3 | 2 | 1 |
| 178 | 0 | 0,8 | 2 | 2 | 2 | 1 |
| 145 | 0 | 4,2 | 0 | 0 | 3 | 1 |
| 179 | 0 | 0   | 2 | 2 | 2 | 1 |
| 194 | 0 | 0,8 | 0 | 0 | 3 | 1 |
| 163 | 0 | 0   | 2 | 0 | 2 | 1 |
| 115 | 0 | 1,5 | 1 | 0 | 2 | 1 |
| 131 | 0 | 0,1 | 1 | 1 | 2 | 1 |
| 152 | 1 | 0,2 | 1 | 0 | 2 | 1 |
| 162 | 0 | 1,1 | 2 | 0 | 2 | 1 |
| 159 | 0 | 0   | 2 | 0 | 2 | 1 |
| 154 | 1 | 0   | 2 | 0 | 2 | 1 |
| 173 | 0 | 0,2 | 2 | 1 | 3 | 1 |
| 133 | 0 | 0,2 | 2 | 0 | 3 | 1 |
| 161 | 0 | 0   | 2 | 0 | 3 | 1 |
| 155 | 0 | 0   | 2 | 0 | 2 | 1 |
| 170 | 0 | 0   | 2 | 0 | 2 | 1 |
| 168 | 0 | 2   | 1 | 0 | 2 | 1 |
| 162 | 0 | 1,9 | 1 | 0 | 3 | 1 |
| 172 | 0 | 0   | 2 | 0 | 2 | 1 |
| 152 | 1 | 0   | 1 | 0 | 2 | 1 |
| 122 | 0 | 2   | 1 | 2 | 2 | 1 |
| 182 | 0 | 0   | 2 | 0 | 2 | 1 |

|     |   |     |   |   |   |   |
|-----|---|-----|---|---|---|---|
| 172 | 1 | 0   | 2 | 0 | 2 | 1 |
| 167 | 0 | 0   | 2 | 0 | 2 | 1 |
| 179 | 0 | 0   | 2 | 0 | 2 | 1 |
| 192 | 0 | 0,7 | 2 | 0 | 2 | 1 |
| 143 | 0 | 0,1 | 2 | 0 | 2 | 1 |
| 172 | 0 | 0   | 2 | 1 | 2 | 1 |
| 169 | 0 | 0,1 | 1 | 0 | 2 | 1 |
| 121 | 1 | 0,2 | 2 | 1 | 2 | 1 |
| 163 | 0 | 0   | 2 | 1 | 2 | 1 |
| 162 | 0 | 0   | 1 | 0 | 2 | 1 |
| 162 | 0 | 0   | 2 | 0 | 2 | 1 |
| 153 | 0 | 0   | 2 | 0 | 2 | 1 |
| 163 | 0 | 0   | 2 | 0 | 2 | 1 |
| 163 | 0 | 0   | 2 | 0 | 2 | 1 |
| 96  | 0 | 0   | 2 | 0 | 2 | 1 |
| 140 | 0 | 0   | 2 | 0 | 2 | 1 |
| 126 | 1 | 1,5 | 1 | 0 | 1 | 1 |
| 105 | 1 | 0,2 | 1 | 1 | 3 | 1 |
| 157 | 0 | 0,6 | 2 | 0 | 2 | 1 |
| 181 | 0 | 1,2 | 1 | 0 | 2 | 1 |
| 173 | 0 | 0   | 1 | 0 | 2 | 1 |
| 142 | 0 | 0,3 | 2 | 2 | 2 | 1 |
| 116 | 0 | 1,1 | 1 | 0 | 2 | 1 |
| 143 | 0 | 0   | 2 | 0 | 2 | 1 |
| 149 | 0 | 0,3 | 1 | 1 | 2 | 1 |
| 171 | 0 | 0,9 | 2 | 0 | 2 | 1 |
| 169 | 0 | 0   | 2 | 0 | 2 | 1 |
| 150 | 0 | 0   | 2 | 0 | 2 | 1 |
| 138 | 0 | 2,3 | 2 | 0 | 1 | 1 |
| 125 | 0 | 1,6 | 1 | 0 | 2 | 1 |
| 155 | 0 | 0,6 | 1 | 0 | 3 | 1 |
| 152 | 0 | 0   | 1 | 1 | 2 | 1 |
| 152 | 0 | 0   | 1 | 0 | 2 | 1 |
| 131 | 0 | 0,6 | 1 | 0 | 2 | 1 |
| 179 | 0 | 0   | 2 | 0 | 2 | 1 |
| 174 | 0 | 0   | 2 | 0 | 2 | 1 |
| 144 | 0 | 0,4 | 1 | 4 | 3 | 1 |
| 163 | 0 | 0   | 2 | 0 | 3 | 1 |
| 169 | 0 | 0   | 0 | 0 | 2 | 1 |
| 166 | 0 | 1,2 | 2 | 0 | 2 | 1 |
| 182 | 0 | 0   | 2 | 0 | 2 | 1 |

|     |   |     |   |   |   |   |
|-----|---|-----|---|---|---|---|
| 173 | 0 | 0   | 2 | 4 | 2 | 1 |
| 173 | 0 | 0   | 2 | 4 | 2 | 1 |
| 108 | 1 | 1,5 | 1 | 3 | 2 | 0 |
| 129 | 1 | 2,6 | 1 | 2 | 3 | 0 |
| 160 | 0 | 3,6 | 0 | 2 | 2 | 0 |
| 147 | 0 | 1,4 | 1 | 1 | 3 | 0 |
| 155 | 1 | 3,1 | 0 | 0 | 3 | 0 |
| 142 | 1 | 0,6 | 1 | 1 | 1 | 0 |
| 168 | 0 | 1   | 0 | 0 | 3 | 0 |
| 160 | 0 | 1,8 | 1 | 0 | 2 | 0 |
| 173 | 0 | 3,2 | 2 | 2 | 3 | 0 |
| 132 | 1 | 2,4 | 1 | 2 | 3 | 0 |
| 114 | 1 | 2   | 1 | 0 | 3 | 0 |
| 160 | 1 | 1,4 | 2 | 2 | 3 | 0 |
| 158 | 0 | 0   | 2 | 0 | 2 | 0 |
| 120 | 1 | 2,5 | 1 | 0 | 3 | 0 |
| 112 | 1 | 0,6 | 1 | 1 | 1 | 0 |
| 132 | 1 | 1,2 | 1 | 1 | 3 | 0 |
| 114 | 0 | 1   | 1 | 3 | 3 | 0 |
| 169 | 0 | 0   | 2 | 0 | 2 | 0 |
| 165 | 0 | 2,5 | 1 | 1 | 3 | 0 |
| 128 | 0 | 2,6 | 1 | 0 | 3 | 0 |
| 153 | 0 | 0   | 2 | 1 | 2 | 0 |
| 144 | 1 | 1,4 | 2 | 1 | 3 | 0 |
| 109 | 1 | 2,2 | 1 | 1 | 3 | 0 |
| 163 | 0 | 0,6 | 1 | 1 | 3 | 0 |
| 158 | 0 | 0   | 2 | 0 | 3 | 0 |
| 142 | 1 | 1,2 | 1 | 0 | 3 | 0 |
| 131 | 1 | 2,2 | 1 | 3 | 3 | 0 |
| 113 | 0 | 1,4 | 1 | 1 | 3 | 0 |
| 142 | 1 | 2,8 | 1 | 2 | 3 | 0 |
| 155 | 0 | 3   | 1 | 0 | 2 | 0 |
| 140 | 1 | 3,4 | 0 | 0 | 3 | 0 |
| 147 | 0 | 3,6 | 1 | 0 | 2 | 0 |
| 163 | 0 | 0,2 | 1 | 2 | 3 | 0 |
| 99  | 1 | 1,8 | 1 | 2 | 3 | 0 |
| 158 | 0 | 0,6 | 2 | 2 | 1 | 0 |
| 177 | 0 | 0   | 2 | 1 | 2 | 0 |
| 141 | 1 | 2,8 | 1 | 1 | 3 | 0 |
| 111 | 1 | 0,8 | 2 | 0 | 3 | 0 |
| 150 | 1 | 1,6 | 1 | 0 | 3 | 0 |

|     |   |     |   |   |   |   |
|-----|---|-----|---|---|---|---|
| 145 | 0 | 6,2 | 0 | 3 | 3 | 0 |
| 161 | 1 | 0   | 2 | 1 | 3 | 0 |
| 142 | 1 | 1,2 | 1 | 1 | 3 | 0 |
| 157 | 0 | 2,6 | 1 | 2 | 3 | 0 |
| 139 | 0 | 2   | 1 | 3 | 3 | 0 |
| 162 | 1 | 0   | 2 | 1 | 3 | 0 |
| 150 | 0 | 0,4 | 1 | 1 | 3 | 0 |
| 140 | 1 | 3,6 | 1 | 1 | 3 | 0 |
| 140 | 0 | 1,2 | 1 | 0 | 3 | 0 |
| 146 | 1 | 1   | 1 | 0 | 3 | 0 |
| 144 | 1 | 1,2 | 1 | 1 | 2 | 0 |
| 136 | 1 | 3   | 1 | 0 | 3 | 0 |
| 97  | 0 | 1,2 | 1 | 1 | 3 | 0 |
| 132 | 1 | 1,8 | 2 | 3 | 3 | 0 |
| 127 | 0 | 2,8 | 1 | 1 | 3 | 0 |
| 150 | 1 | 0   | 2 | 2 | 3 | 0 |
| 154 | 0 | 4   | 1 | 3 | 3 | 0 |
| 111 | 1 | 5,6 | 0 | 0 | 3 | 0 |
| 174 | 0 | 1,4 | 1 | 1 | 2 | 0 |
| 133 | 1 | 4   | 0 | 2 | 3 | 0 |
| 126 | 1 | 2,8 | 1 | 1 | 3 | 0 |
| 125 | 1 | 2,6 | 0 | 0 | 3 | 0 |
| 103 | 0 | 1,4 | 1 | 1 | 3 | 0 |
| 130 | 1 | 1,6 | 1 | 0 | 3 | 0 |
| 159 | 0 | 0,2 | 1 | 0 | 3 | 0 |
| 131 | 1 | 1,8 | 1 | 0 | 3 | 0 |
| 152 | 0 | 0   | 2 | 0 | 2 | 0 |
| 124 | 0 | 1   | 1 | 3 | 3 | 0 |
| 145 | 1 | 0,8 | 1 | 1 | 3 | 0 |
| 96  | 1 | 2,2 | 0 | 1 | 2 | 0 |
| 109 | 0 | 2,4 | 1 | 3 | 2 | 0 |
| 173 | 1 | 1,6 | 2 | 0 | 3 | 0 |
| 171 | 0 | 0   | 2 | 2 | 3 | 0 |
| 170 | 0 | 1,2 | 1 | 2 | 3 | 0 |
| 162 | 1 | 0   | 2 | 3 | 2 | 0 |
| 156 | 1 | 0   | 2 | 0 | 3 | 0 |
| 112 | 1 | 2,9 | 1 | 1 | 3 | 0 |
| 143 | 1 | 0   | 1 | 0 | 2 | 0 |
| 132 | 0 | 2   | 1 | 2 | 1 | 0 |
| 88  | 1 | 1,2 | 1 | 1 | 3 | 0 |
| 105 | 1 | 2,1 | 1 | 1 | 1 | 0 |

|     |   |     |   |   |   |   |
|-----|---|-----|---|---|---|---|
| 166 | 0 | 0,5 | 1 | 0 | 3 | 0 |
| 150 | 1 | 1,9 | 1 | 2 | 3 | 0 |
| 120 | 1 | 0   | 1 | 3 | 1 | 0 |
| 195 | 0 | 0   | 2 | 1 | 3 | 0 |
| 146 | 0 | 2   | 1 | 3 | 3 | 0 |
| 122 | 1 | 4,2 | 1 | 3 | 3 | 0 |
| 143 | 1 | 0,1 | 1 | 4 | 3 | 0 |
| 106 | 0 | 1,9 | 1 | 3 | 2 | 0 |
| 125 | 1 | 0,9 | 1 | 2 | 2 | 0 |
| 125 | 0 | 0   | 2 | 0 | 2 | 0 |
| 147 | 1 | 0   | 1 | 3 | 3 | 0 |
| 130 | 1 | 3   | 1 | 2 | 3 | 0 |
| 126 | 1 | 0,9 | 1 | 0 | 3 | 0 |
| 154 | 1 | 1,4 | 1 | 0 | 2 | 0 |
| 182 | 1 | 3,8 | 1 | 0 | 3 | 0 |
| 165 | 1 | 1   | 1 | 2 | 3 | 0 |
| 160 | 0 | 0   | 2 | 1 | 2 | 0 |
| 95  | 1 | 2   | 1 | 2 | 3 | 0 |
| 169 | 1 | 1,8 | 1 | 2 | 2 | 0 |
| 108 | 1 | 0   | 1 | 1 | 2 | 0 |
| 132 | 1 | 0,1 | 2 | 1 | 2 | 0 |
| 117 | 1 | 3,4 | 1 | 0 | 2 | 0 |
| 126 | 0 | 0,8 | 2 | 3 | 2 | 0 |
| 116 | 1 | 3,2 | 1 | 2 | 2 | 0 |
| 103 | 1 | 1,6 | 0 | 0 | 3 | 0 |
| 144 | 0 | 0,8 | 2 | 0 | 3 | 0 |
| 145 | 0 | 2,6 | 1 | 2 | 2 | 0 |
| 71  | 0 | 1   | 1 | 0 | 2 | 0 |
| 156 | 0 | 0,1 | 2 | 1 | 3 | 0 |
| 118 | 1 | 1   | 1 | 1 | 2 | 0 |
| 168 | 0 | 1   | 2 | 2 | 3 | 0 |
| 105 | 0 | 2   | 1 | 1 | 3 | 0 |
| 141 | 0 | 0,3 | 2 | 0 | 3 | 0 |
| 152 | 0 | 0   | 2 | 2 | 2 | 0 |
| 125 | 1 | 3,6 | 1 | 1 | 2 | 0 |
| 125 | 1 | 1,8 | 1 | 0 | 1 | 0 |
| 156 | 1 | 1   | 1 | 0 | 0 | 0 |
| 134 | 0 | 2,2 | 1 | 1 | 1 | 0 |
| 181 | 0 | 0   | 2 | 0 | 3 | 0 |
| 138 | 1 | 1,9 | 2 | 1 | 3 | 0 |
| 120 | 1 | 1,8 | 1 | 2 | 3 | 0 |

|     |   |     |   |   |   |   |
|-----|---|-----|---|---|---|---|
| 162 | 0 | 0,8 | 2 | 2 | 2 | 0 |
| 164 | 0 | 0   | 2 | 1 | 2 | 0 |
| 143 | 1 | 3   | 1 | 1 | 3 | 0 |
| 130 | 1 | 2   | 1 | 1 | 3 | 0 |
| 161 | 0 | 0   | 2 | 1 | 3 | 0 |
| 140 | 0 | 4,4 | 0 | 3 | 1 | 0 |
| 146 | 1 | 2,8 | 1 | 2 | 1 | 0 |
| 150 | 0 | 0,8 | 1 | 0 | 3 | 0 |
| 144 | 1 | 2,8 | 0 | 0 | 1 | 0 |
| 144 | 1 | 4   | 2 | 2 | 3 | 0 |
| 136 | 1 | 0   | 1 | 0 | 2 | 0 |
| 90  | 0 | 1   | 1 | 2 | 1 | 0 |
| 123 | 1 | 0,2 | 1 | 0 | 3 | 0 |
| 132 | 0 | 1,2 | 1 | 0 | 3 | 0 |
| 141 | 0 | 3,4 | 1 | 2 | 3 | 0 |
| 115 | 1 | 1,2 | 1 | 1 | 3 | 0 |
| 174 | 0 | 0   | 1 | 1 | 2 | 0 |



**Tahap 1. Hitung Probabilitas Kelas-Nya**

| Probabilitas Label Kelas |                    |
|--------------------------|--------------------|
| Atribut                  | Nilai Probabilitas |
| 0                        | 0,4554             |
| 1                        | 0,5446             |
| Total                    | 1                  |

Note :

**Tahap 2. Hitung Probabilitas setiap atribut yang beripe kateg**

| Sex   Kelas ? | 0      | 1      |
|---------------|--------|--------|
| 0             | 0,1739 | 0,4364 |
| 1             | 0,8261 | 0,5636 |
| Total         | 1      | 1      |

Note :

| CP   Kelas ? | 0      | 1      |
|--------------|--------|--------|
| 0            | 0,7536 | 0,2364 |
| 1            | 0,0652 | 0,2485 |
| 2            | 0,1304 | 0,4182 |
| 3            | 0,0507 | 0,0970 |
| Total        | 1      | 1      |

Note :

| FBS   Kelas ? | 0      | 1      |
|---------------|--------|--------|
| 0             | 0,8406 | 0,8606 |
| 1             | 0,1594 | 0,1394 |
| Total         | 1      | 1      |

Note :

| restecg   Kelas ? | 0      | 1      |
|-------------------|--------|--------|
| 0                 | 0,5725 | 0,4121 |
| 1                 | 0,4058 | 0,5818 |
| 2                 | 0,0217 | 0,0061 |
| Total             | 1      | 1      |

Note :

| exng   Kelas ? | 0      | 1      |
|----------------|--------|--------|
| 0              | 0,4493 | 0,8606 |
| 1              | 0,5507 | 0,1394 |
| Total          | 1      | 1      |

Note :

| slp   Kelas ? | 0      | 1      |
|---------------|--------|--------|
| 0             | 0,0870 | 0,0545 |
| 1             | 0,6594 | 0,2970 |

Note :

|       |        |        |
|-------|--------|--------|
| 2     | 0,2536 | 0,6485 |
| Total | 1      | 1      |

| caa   Kelas ? | 0      | 1      |
|---------------|--------|--------|
| 0             | 0,3261 | 0,7879 |
| 1             | 0,3188 | 0,1273 |
| 2             | 0,2246 | 0,0424 |
| 3             | 0,1232 | 0,0182 |
| 4             | 0,0072 | 0,0242 |
| Total         | 1      | 1      |

| thall   Kelas ? | 0      | 1      |
|-----------------|--------|--------|
| 0               | 0,0072 | 0,0061 |
| 1               | 0,0870 | 0,0364 |
| 2               | 0,2609 | 0,7879 |
| 3               | 0,6449 | 0,1697 |
| Total           | 1      | 1      |

**Tahap 3. Menghitung nilai *MEAN dan Standar Deviasi* untuk**  
 Buat tabel untuk masing-masing atribut berdasarkan nilai label  
 Ada di *sheet data tabel*

| MEAN            |       |        |        |
|-----------------|-------|--------|--------|
| Kelas   Atribut | age   | trtbps | chol   |
| 0               | 56,60 | 134,40 | 251,09 |
| 1               | 52,50 | 129,30 | 242,23 |

| Standar Deviasi |      |        |       |
|-----------------|------|--------|-------|
| Kelas   Atribut | age  | trtbps | chol  |
| 0               | 7,96 | 18,73  | 49,45 |
| 1               | 9,55 | 16,17  | 53,55 |

**Tahap 4. Menghitung prediksi. "Jika atribut *numerik* gunakan"**

| No | age | sex | cp | trtbps |
|----|-----|-----|----|--------|
| 1  | 63  | 1   | 3  | 145    |
| 2  | 38  | 1   | 2  | 138    |
| 3  | 38  | 1   | 2  | 138    |

|   |    |   |   |     |
|---|----|---|---|-----|
| 4 | 67 | 1 | 0 | 160 |
| 5 | 67 | 1 | 0 | 120 |

| Data Uji ke - 1 | age         | sex         | cp         | trtbps     |
|-----------------|-------------|-------------|------------|------------|
| 0               | 0,102392777 | 0,826086957 | 0,05072464 | 0,07855676 |
| 1               | 0,070532593 | 0,563636364 | 0,0969697  | 0,0619487  |

| Data Uji ke - 2 | age         | sex         | cp         | trtbps     |
|-----------------|-------------|-------------|------------|------------|
| 0               | 0,009232062 | 0,826086957 | 0,13043478 | 0,09051559 |
| 1               | 0,040802754 | 0,563636364 | 0,41818182 | 0,08587196 |

| Data Uji ke - 3 | age         | sex         | cp         | trtbps     |
|-----------------|-------------|-------------|------------|------------|
| 0               | 0,009232062 | 0,826086957 | 0,13043478 | 0,09051559 |
| 1               | 0,040802754 | 0,563636364 | 0,41818182 | 0,08587196 |

| Data Uji ke - 4 | age         | sex         | cp         | trtbps     |
|-----------------|-------------|-------------|------------|------------|
| 0               | 0,060273661 | 0,826086957 | 0,75362319 | 0,03622821 |
| 1               | 0,040763462 | 0,563636364 | 0,23636364 | 0,01637039 |

| Data Uji ke - 1 | age         | sex         | cp         | trtbps     |
|-----------------|-------------|-------------|------------|------------|
| 0               | 0,060273661 | 0,826086957 | 0,75362319 | 0,06861589 |
| 1               | 0,040763462 | 0,563636364 | 0,23636364 | 0,08409904 |

### Tahap 5. Validasi akurasi

#### Confusion Matrix

| Aktual | Prediksi |   |
|--------|----------|---|
|        | 0        | 1 |
| 0      | 2        | 0 |
| 1      | 1        | 2 |













(atribut yang diprediksi) diagnosis penyakit jantung (status penyakit angiografi)

- a. Nilai **0**: <50% penyempitan diameter
- b. Nilai **1**: > penyempitan diameter 50%

**orik/diskrit**

jenis kelamin  
0 = perempuan  
1 = laki-laki

- tipe nyeri dada
- a. Nilai 0: khas angina
  - b. Nilai 1: angina atipikal
  - c. Nilai 2: nyeri non-angina
  - d. Nilai 3: tanpa gejala

(gula darah puasa / sebelum makan > 120m/dl)  
0 = salah  
1 = benar

- beristirahat hasil elektrokardiografi (alat pemeriksa otot jantung)
- a. Nilai 0: normal 79
  - b. Nilai 1: memiliki kelainan gelombang ST-T (inversi gelombang T dan / atau ST 56
  - c. Nilai 2: hipertrofi ventrikel kiri oleh Estes' kriteria 3

olahraga yang diinduksi angina

|           |    |     |     |
|-----------|----|-----|-----|
| 0 = tidak | 62 | 142 | 204 |
| 1 = ya    | 76 | 23  | 99  |

kemiringan segmen ST latihan puncak

|                      |    |    |     |
|----------------------|----|----|-----|
| a. Nilai 0: menanjak | 12 | 9  | 21  |
| b. Nilai 1: datar    | 91 | 49 | 140 |

c. Nilai 2: downsloping

35                      107                      142

45                      130                      175  
 44                      21                      65  
 31                      7                      38  
 17                      3                      20  
 1                      4                      5

1                      1                      2  
 12                      6                      18  
 36                      130                      166  
 89                      28                      117

**atribut bertipe numerik**

di ny

| thalachh | oldpeak |
|----------|---------|
| 139,10   | 0,39    |
| 158,47   | 0,08    |

| thalachh | oldpeak |
|----------|---------|
| 22,60    | 0,86    |
| 19,17    | 0,35    |

$$P(X_i = x_i | Y = y_j) = \frac{1}{\sqrt{2\pi\sigma_{ij}}} \exp^{-\frac{(x_i - \mu_{ij})^2}{2\sigma_{ij}^2}}$$

**rumus Gaussian**

**5 Contoh Dataset - diambil secara acak**

| chol | fbs | restecg | thalachh | exng | oldpeak | slp |
|------|-----|---------|----------|------|---------|-----|
| 233  | 1   | 0       | 150      | 0    | 2,3     | 0   |
| 175  | 0   | 1       | 173      | 0    | 0       | 2   |
| 175  | 0   | 1       | 173      | 0    | 0       | 2   |

|     |   |   |     |   |     |   |
|-----|---|---|-----|---|-----|---|
| 286 | 0 | 0 | 108 | 1 | 1,5 | 1 |
| 229 | 0 | 0 | 129 | 1 | 2,6 | 1 |

| chol       | fbs        | restecg    | thalachh   | exng       | oldpeak    | slp        |
|------------|------------|------------|------------|------------|------------|------------|
| 0,05307277 | 0,15942029 | 0,57246377 | 0,07472641 | 0,44927536 | 0,0367209  | 0,08695652 |
| 0,05372518 | 0,13939394 | 0,41212121 | 0,08266499 | 0,86060606 | 1,2287E-09 | 0,05454545 |

| chol       | fbs        | restecg    | thalachh   | exng       | oldpeak    | slp        |
|------------|------------|------------|------------|------------|------------|------------|
| 0,01737477 | 0,84057971 | 0,4057971  | 0,02725119 | 0,44927536 | 0,38837622 | 0,25362319 |
| 0,02479694 | 0,86060606 | 0,58181818 | 0,06837682 | 0,86060606 | 0,65712894 | 0,64848485 |

| chol       | fbs        | restecg    | thalachh   | exng       | oldpeak    | slp        |
|------------|------------|------------|------------|------------|------------|------------|
| 0,01737477 | 0,84057971 | 0,4057971  | 0,02725119 | 0,44927536 | 0,38837622 | 0,25362319 |
| 0,02479694 | 0,86060606 | 0,58181818 | 0,06837682 | 0,86060606 | 0,65712894 | 0,64848485 |

| chol       | fbs        | restecg    | thalachh   | exng       | oldpeak    | slp        |
|------------|------------|------------|------------|------------|------------|------------|
| 0,04422773 | 0,84057971 | 0,57246377 | 0,03256043 | 0,55072464 | 0,18704383 | 0,65942029 |
| 0,03904566 | 0,86060606 | 0,41212121 | 0,00285359 | 0,13939394 | 0,00017931 | 0,2969697  |

| chol       | fbs        | restecg    | thalachh   | exng       | oldpeak    | slp        |
|------------|------------|------------|------------|------------|------------|------------|
| 0,05135756 | 0,84057971 | 0,57246377 | 0,07596114 | 0,55072464 | 0,01597071 | 0,65942029 |
| 0,05289022 | 0,86060606 | 0,41212121 | 0,02797852 | 0,13939394 | 3,6951E-12 | 0,2969697  |

### Performance Vector

| Variabel  | Rumus            | Hasil |
|-----------|------------------|-------|
| Akurasi   | $TP + TN / Jun$  | 80%   |
| Precision | $TP / (TP + FP)$ | 100%  |
| Recall    | $TP / (TP + FN)$ | 67%   |













68

96

1

$$\frac{-z_{\alpha/2} \sigma_y}{\sigma_y^2}$$

.

| caa | thall | output | Prediksi |
|-----|-------|--------|----------|
| 0   | 1     | 1      | 0        |
| 4   | 2     | 1      | 1        |
| 4   | 2     | 1      | 1        |

|   |   |   |   |
|---|---|---|---|
| 3 | 2 | 0 | 0 |
| 2 | 3 | 0 | 0 |

| caa        | thall      | prob kelas/output | Hasil      | Prediksi |
|------------|------------|-------------------|------------|----------|
| 0,32608696 | 0,08695652 | 0,46              | 2,2601E-12 | 0        |
| 0,78787879 | 0,03636364 | 0,54              | 5,4829E-20 |          |

| caa        | thall      | prob kelas/output | Hasil      | Prediksi |
|------------|------------|-------------------|------------|----------|
| 0,00724638 | 0,26086957 | 0,46              | 5,5408E-13 | 1        |
| 0,02424242 | 0,78787879 | 0,54              | 2,6745E-09 |          |

| caa        | thall      | prob kelas/output | Hasil      | Prediksi |
|------------|------------|-------------------|------------|----------|
| 0,00724638 | 0,26086957 | 0,46              | 5,5408E-13 | 1        |
| 0,02424242 | 0,78787879 | 0,54              | 2,6745E-09 |          |

| caa        | thall      | prob kelas/output | Hasil      | Prediksi |
|------------|------------|-------------------|------------|----------|
| 0,12318841 | 0,26086957 | 0,46              | 9,3656E-10 | 0        |
| 0,01818182 | 0,78787879 | 0,54              | 2,0342E-16 |          |

| caa        | thall      | prob kelas/output | Hasil      | Prediksi |
|------------|------------|-------------------|------------|----------|
| 0,22463768 | 0,64492754 | 0,46              | 1,8497E-09 | 0        |
| 0,04242424 | 0,16969697 | 0,54              | 1,4374E-22 |          |