Assignment 1 - Working with Processes

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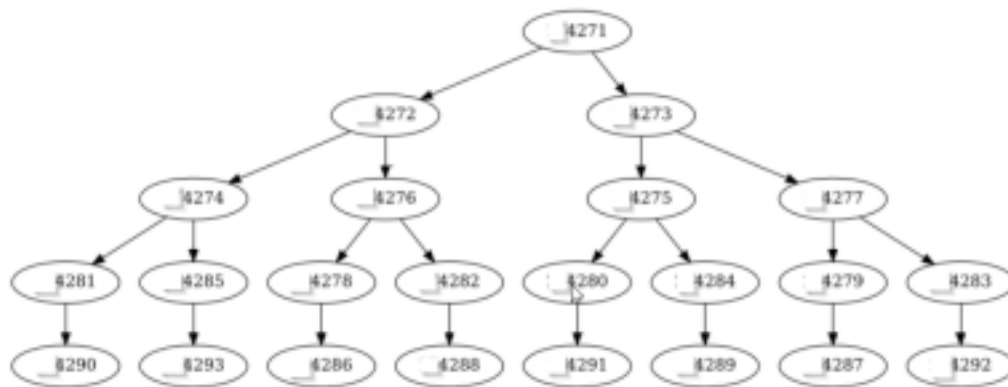CS22BT036 - Soumya

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1 Process Tree

Figure 1: part-2

Each process forks two children if the range is larger than the maximum chunk size. The parent process waits for the children to complete before exiting.

2 Observations

4271 start position = 0 ; end position = 67108863

4271 forked left child 4272

4271 forked right child 4273

4272 start position = 0 ; end position = 33554431

4273 start position = 33554432 ; end position = 67108863

4272 forked left child 4274

4273 start position = 33554432 ; end position = 67108863

4273 forked left child 4275

4272 forked right child 4276

4273 forked right child 4277

4276 start position = 16777216 ; end position =

33554431 4277 start position = 50331648 ; end position

= 67108863 4274 start position = 0 ; end position =

16777215 4275 start position = 33554432 ; end position

= 50331647 4276 forked left child 4278

4277 forked left child 4279

4275 forked left child 4280

4274 forked left child 4281

4276 forked right child 4282

4277 forked right child 4283

4275 forked right child 4284

4274 forked right child 4285

4278 start position = 16777216 ; end position =

25165823 4279 start position = 50331648 ; end position

= 58720255 4278 forked searcher child 4286

4282 start position = 25165824 ; end position =

33554431 4279 forked searcher child 4287

4284 start position = 41943040 ; end position =

50331647 4282 forked searcher child 4288

4281 start position = 0 ; end position = 8388607 4280

start position = 33554432 ; end position = 41943039

4283 start position = 58720256 ; end position =

67108863 4284 forked searcher child 4289

4281 forked searcher child 4290

4280 forked searcher child 4291

4285 start position = 8388608 ; end position =

16777215 2

4283 forked searcher child 4292

4285 forked searcher child 4293

4292 found at 64520807

4283 searcher child returned

4277 right child returned

4288 didn't find

Part III: Killing Processes After Finding the Pattern

In the third part, once the pattern is found by any searcher process, all remaining processes are terminated using SIGTERM to avoid redundant searching and the ancestors are returned.
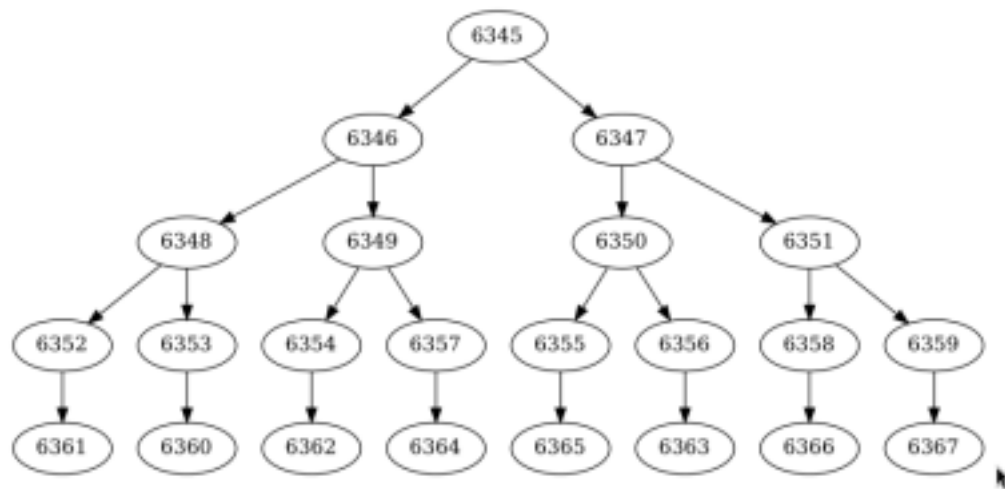
2.1 Process Tree

Figure 2: part-3

2.2 Observations

6345 start position = 0 ; end position = 67108863

6345 forked left child 6346

6345 forked right child 6347

6346 start position = 0 ; end position = 33554431

6346 forked left child 6348

6346 forked right child 6349

6347 start position = 33554432 ; end position =

67108863 6347 forked left child 6350

6347 forked right child 6351

6348 start position = 0 ; end position =

16777215 6348 forked left child 6352

6348 forked right child 6353

6349 start position = 16777216 ; end position =

33554431 6350 start position = 33554432 ; end position

= 50331647 6349 forked left child 6354

6350 forked left child 6355

6350 forked right child 6356

6349 forked right child 6357

6351 start position = 50331648 ; end position =

67108863 6351 forked left child 6358

6351 forked right child 6359

6353 start position = 8388608 ; end position =

16777215 6353 forked searcher child 6360

6352 start position = 0 ; end position = 838860 6352

start position = 0 ; end position = 8388607 6354 start

position = 16777216 ; end position = 25165823 6352

forked searcher child 6361

6356 start position = 41943040 ; end position =

50331647 6354 forked searcher child 6362

6356 forked searcher child 6363

6357 start position = 25165824 ; end position =

33554431 6357 forked searcher child 6364

6355 start position = 33554432 ; end position =

41943039 6355 forked searcher child 6365

6358 start position = 50331648 ; end position =

58720255 6359 start position = 58720256 ; end position

= 67108863 6358 forked searcher child 6366

6359 forked searcher child 6367

6367 found at 64520807

  359 searcher child returned

6351 right child returned

6358 received SIGTERM

6366 received SIGTERM

6347 right child returned

6350 received SIGTERM

6355 received SIGTERM

6356 received SIGTERM

6365 received SIGTERM

6363 received SIGTERM

6345 right child returned

6346 received SIGTERM

6348 received SIGTERM

6349 received SIGTERM

6357 received SIGTERM

6353 received SIGTERM

6354 received SIGTERM

6364 received SIGTERM

6360 received SIGTERM

6362 received SIGTERM

6352 received SIGTERM

6361 received SIGTERM