**TUGAS AKHIR PRAKTIKUM**

**PRAKTIKUM ALGORITMA DAN STRUKTUR DATA**

**SEMESTER GENAP TAHUN 2020/2021**

1. **Deskripsi Tugas Akhir Praktikum**
2. Tugas dikerjakan secara group (@2 orang) atau mandiri.
   * Mahasiswa bebas membentuk kelompoknya dan konfirmasi ke asisten maks tgl 23 Juni 2021. Bagi yang tidak konfirmasi berarti tugas dikerjakan secara mandiri.
3. Mahasiswa menggunakan data yang telah ditentukan (Lihat Data No.2)
4. Tiap kelompok / mahasiswa hanya mengerjakan satu topik permasalahan.
   * Pembagian topik diumumkan pada hari Kamis, 23 Juni 2021. (bisa lebih cepat)
5. Mahasiswa mendokumentasikan hasil tugasnya dalam bentuk laporan (.pdf) dan teknis presentasi tugas mengikuti arahan dosen pengampu masing-masing.
6. Persentase penilaian tugas akhir :

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| --- | --- |
| Program menjawab pertanyaan | 40% |
| Penjelasan | 30% |
| Tidak ada bug | 20% |
| Kompleksitas program tidak terlalu tinggi (terkait dengan Big-O Notation) | 10% |

1. **Data yang diolah**

**Jadwal Pertandingan Piala Dunia 2018**

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| --- | --- | --- | --- |
| **No** | **Pertandingan / Match** | **Tempat / Venue** | **Waktu / Time** |
| 1 | Russia – Saudi Arabia | Moskwa Luzhniki | 14 June 2018, 22.00 |
| 2 | Egypt – Uruguay | Yekaterinburg | 15 June 2018, 19.00 |
| 3 | Russia – Egypt | St. Petersburg | 20 June 2018, 01.00 |
| 4 | Uruguay – Saudi Arabia | Rostov-on-Don | 20 June 2018, 22.00 |
| 5 | Arab Saudi – Egypt | Vologorad | 25 June 2018, 21.00 |
| 6 | Uruguay – Russia | Samara | 25 June 2018, 21.00 |
| 7 | Portugal – Spain | Sochi | 16 June 2018, 01.00 |
| 8 | Morocco – Iran | St. Petersburg | 15 June 2018, 22.00 |
| 9 | Portugal – Morocco | Moskwa Luzhniki | 20 June 2018, 19.00 |
| 10 | Iran – Spain | Kazan | 21 June 2018, 01.00 |
| 11 | Spain – Morocco | Kaliningrad | 26 June 2018, 01.00 |
| 12 | Iran – Portugal | Saransk | 26 June 2018, 01.00 |
| 13 | France – Australia | Kazan | 16 June 2018, 17.00 |
| 14 | Peru – Denmark | Saransk | 16 June 2018, 23.00 |
| 15 | France – Peru | Yekaterinburg | 21 June 2018, 22.00 |
| 16 | Denmark – Australia | Samara | 21 June 2018, 19.00 |
| 17 | Denmark – France | Moskwa Luzhniki | 26 June 2018, 21.00 |
| 18 | Australia – Peru | Sochi | 26 June 2018, 21.00 |
| 19 | Argentina – Iceland | Moskwa Spartak | 16 June 2018, 20.00 |
| 20 | Croatia – Nigeria | Kaliningrad | 17 June 2018, 02.00 |
| 21 | Argentina – Croatia | Nizhni Novgorod | 22 June 2018, 01.00 |
| 22 | Nigeria – Iceland | Volgograd | 22 June 2018, 22.00 |
| 23 | Iceland – Croatia | Rostov-on-Don | 27 June 2018, 01.00 |
| 24 | Nigeria – Argentina | St. Petersburg | 27 June 2018, 01.00 |
| 25 | Brazil – Switzerland | Rostov-on-Don | 18 June 2018, 01.00 |
| 26 | Costa Rica – Serbia | Samara | 17 June 2018, 19.00 |
| 27 | Brazil – Costa Rica | St. Petersburg | 22 June 2018, 19.00 |
| 28 | Serbia – Switzerland | Kaliningrad | 23 June 2018, 01.00 |
| 29 | Serbia – Brazil | Moskwa Spartak | 28 June 2018, 01.00 |
| 30 | Switzerland – Costa Rica | Nizhni Novgorod | 28 June 2018, 01.00 |
| 31 | Germany – Mexico | Moskwa Luzhniki | 17 June 2018, 22.00 |
| 32 | Sweden – South Korea | Nizhni Novgorod | 18 June 2018, 19.00 |
| 33 | Germany – Sweden | Sochi | 24 June 2018, 01.00 |
| 34 | South Korea – Mexico | Rostov-on-Don | 23 June 2018, 22.00 |
| 35 | South Korea – Germany | Kazan | 27 June 2018, 21.00 |
| 36 | Mexico – Sweden | Yekaterinburg | 27 June 2018, 21.00 |
| 37 | Belgium – Panama | Sochi | 18 June 2018, 22.00 |
| 38 | Tunisia – England | Volovograd | 19 June 2018, 01.00 |
| 39 | Belgium – Tunisia | Moskwa Spartak | 23 June 2018, 19.00 |
| 40 | England – Panama | Nizhni Novgorod | 24 June 2018, 19.00 |
| 41 | England – Belgium | Kaliningrad | 29 June 2018, 01.00 |
| 42 | Poland – Senegal | Moskwa Spartak | 19 June 2018, 22.00 |
| 43 | Colombia – Japan | Saransk | 19 June 2018, 19.00 |
| 44 | Japan – Senegal | Yekaterinburg | 24 June 2018, 22.00 |
| 45 | Poland – Colombia | Kazan | 25 June 2018, 01.00 |
| 46 | Japan – Poland | Volgograd | 28 June 2018, 21.00 |
| 47 | Senegal – Colombia | Samara | 28 June 2018, 21.00 |

1. **Daftar Topik Permasalahan**

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| **No** | **Topik** | **Permasalahan** |
| 1 | Buble Sort | Membuat program pengurutan berdasarkan :   1. Huruf alphabet dari kolom tempat pertandingan 2. Waktu pertandingan awal ke akhir, dan sebaliknya |
| 2 | Insertion Sort |
| 3 | Selection Sort |
| 4 | Merge Sort |
| 5 | Quick Sort |
| 6 | Searching | Dengan menggunakan algoritma binary search, buatlah program pencarian berdasarkan kondisi berikut :   1. Mendapatkan lokasi pertandingan tertentu (input dari user) 2. Mendapatkan pertandingan dari tanggal tertentu (input dari user) |
| 7 | Regular Expressions | 1. Menghitung jumlah pertandingan yang terjadi pada suatu tempat yang berawalan huruf tertentu (user bebas memasukkan 2. Menghitung berapa kali setiap negara melakukan pertandingan. |
| 8 | Stack | 1. Membuat program stack dan melakukan langkah-langkah push and pop 2. Atur program agar dapat mencegah duplikasi data |
| 9 | Queue | 1. Membuat program stack dan melakukan langkah-langkah enqueue dan dequeuer 2. Atur program agar dapat mencegah duplikasi data |

Catatan :

Tiap kelompok / mahasiswa hanya mengerjakan satu topik permasalahan sesuai pembagian oleh dosen / asisten.