**Schedule:**

1. Iterators overview. (1 – 2)
2. Containers. Start with std::map. (3 – 4)
3. Questions?
4. Go to code:
5. Show Interface of a map.
6. Show how template arguments can be adjusted for map.
7. Ask class where can we find more comparison functions (<http://en.cppreference.com/w/cpp/header/functional>)
8. Present .doc document. Talk about red black trees.
9. Show simple binary tree. Show that it can be linear.
10. Show visualization of red black tree online.
11. Show difference of simple binary tree with red-black tree. (show why it self-balances itself.)
12. Give class exercise one (counting occurrences).
13. Give class exercise two (iteration)
14. Give class exercise three (constructors)
15. std::multimap.
16. Show in code the only difference with std::map – that multiple keys are allowed.
17. std::set & std::multiset
18. Say that difference between set and map is that set holds only keys, and map holds key – value.
19. In code: Show usages of set and map.
20. std::unordered\_map (5 -6)
21. Present .doc document. Talk about hash table.
22. Show visualization of hash table online.
23. Go to code:
24. Present basic interface.
25. Present advanced interface.
26. Give exercise.
27. std::array
28. In code: Present differences between C++11 array and C-style array.
29. std::deque (7)
30. Present .doc document. Talk about examples of usage.
31. Go to code:
32. Present Interface.
33. std::priority\_queue (8 – 11)
34. Show presentation in .doc document.
35. Talk about heaps.
36. Go to code:
37. Show Interface
38. Give exercise (constructing out of std::vector).
39. std::queue (12 – 13)
40. Show pictures in .doc document.
41. Go to code:
42. Present Interface
43. Give exercise (constructors)
44. std::stack
45. Show pictures in .doc document
46. Go to code: show Interface
47. **Performance exercises:**
48. First exercise: optimize the function
49. First exercise: correct code
50. Second exercise: return biggest integer
51. Second exercise: Correct code
52. Second exercise: Correct code with dynamic input – show class how different containers can change performance.
53. Third exercise: return biggest and lowest integer