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Course: ECE596C
Section: T01

Assignment ID: cpp_containers
Assignment Title: Containers

Submission Source: https://github.com/uvic-seng475-2020-05/cpp_containers-JudeOn
yia.git
Commit ID: 049e9257cfc21c36107b991a175d6bc628a6067f

Submitted Files
===============

drwxrwxr-x        72 2020-07-03 05:25 ./app
-rw-rw-r--      3089 2020-07-03 05:25 ./app/test_intrusive_list.cpp
-rw-rw-r--      2117 2020-07-03 05:25 ./app/test_sv_set.cpp
-rw-rw-r--       473 2020-07-03 05:25 ./CMakeLists.txt
-rw-rw-r--       144 2020-07-03 05:25 ./IDENTIFICATION.txt
drwxrwxr-x        24 2020-07-03 05:25 ./include
drwxrwxr-x        96 2020-07-03 05:25 ./include/ra
-rw-rw-r--     10708 2020-07-03 05:25 ./include/ra/intrusive_list.hpp
-rw-rw-r--      1297 2020-07-03 05:25 ./include/ra/parent_from_member.hpp
-rw-rw-r--     14337 2020-07-03 05:25 ./include/ra/sv_set.hpp
-rw-rw-r--    195631 2020-07-03 05:25 ./README.pdf
-rw-rw-r--       575 2020-07-03 05:25 ./Sanitizers.cmake

Results
=======

Package          Operation Target          Status
nonprog          generate  ---             OK (0.0s)
set_orig         generate  ---             OK (0.2s)
set_orig         configure ---             OK (2.0s)
set_orig         build     test_sv_set     OK (1.1s)
set_sane         generate  ---             OK (0.5s)
set_sane         configure ---             OK (1.9s)
set_sane         build     test_sv_set     FAIL (2 1.2s 2549L)
list_orig        generate  ---             OK (0.2s)
list_orig        configure ---             OK (1.6s)
list_orig        build     test_intrusive_l OK (1.1s)
list_sane        generate  ---             OK (0.5s)
list_sane        configure ---             OK (1.5s)
list_sane        build     test_intrusive_l FAIL (2 0.6s 629L)
```

Normally, an operation is indicated as having a status of either "OK" or
"FAIL".  A status of "?" indicates that the operation could not be performed
for some reason (e.g., due to an earlier error or being a manual step).
The time (in seconds) required for an operation is denoted by an expression
consisting of a number followed by the letter "s" (e.g., "5.0s").
In the case of a test that consists of multiple test cases, the number of
failed test cases and total number of test cases is expressed as a fraction
(e.g., "10/50" means 10 test cases failed out of 50 test cases in total).
The length (in lines) of the log file generated by an operation is denoted by
an expression consisting of a number followed by the letter "L" (e.g., "10L").
To ascertain the reason for the failure of an operation, check the contents
of the log file provided.

```
Legend
======

Package: nonprog
    Nonprogramming exercises

Package: set_orig
    The code as originally submitted by the student.
Build target: test_sv_set
    Build the test_sv_set program.

Package: set_sane
    Code with modifications to perform API sanity checking.
Build target: test_sv_set
    Build the (dummy) test_sv_set program.

Package: list_orig
    The code as originally submitted by the student.
Build target: test_intrusive_list
    Build the test_intrusive_list program.

Package: list_sane
    Code with modifications to perform API sanity checking.
Build target: test_intrusive_list
    Build the (dummy) test_intrusive_list program.
```

```
1   /home/frodo/public/ugls_lab-4.0.70/packages/cmake-3.17.1/bin/cmake
2   -S/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
3   udeOnyia/cktmp/package-set-sane/source
4   -B/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
5   udeOnyia/cktmp/package-set-sane/derived --check-build-system
6   CMakeFiles/Makefile.cmake 0
7   /usr/bin/gmake  -f CMakeFiles/Makefile2 test_sv_set
8   gmake[1]: Entering directory
9   '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
10  deOnyia/cktmp/package-set-sane/derived'
11  /home/frodo/public/ugls_lab-4.0.70/packages/cmake-3.17.1/bin/cmake
12  -S/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
13  udeOnyia/cktmp/package-set-sane/source
14  -B/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
15  udeOnyia/cktmp/package-set-sane/derived --check-build-system
16  CMakeFiles/Makefile.cmake 0
17  /home/frodo/public/ugls_lab-4.0.70/packages/cmake-3.17.1/bin/cmake -E
18  cmake_progress_start
19  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
20  eOnyia/cktmp/package-set-sane/derived/CMakeFiles 2
21  /usr/bin/gmake  -f CMakeFiles/Makefile2 CMakeFiles/test_sv_set.dir/all
22  gmake[2]: Entering directory
23  '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
24  deOnyia/cktmp/package-set-sane/derived'
25  /usr/bin/gmake  -f CMakeFiles/test_sv_set.dir/build.make
26  CMakeFiles/test_sv_set.dir/depend
27  gmake[3]: Entering directory
28  '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
29  deOnyia/cktmp/package-set-sane/derived'
30  cd
31  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
32  eOnyia/cktmp/package-set-sane/derived &&
33  /home/frodo/public/ugls_lab-4.0.70/packages/cmake-3.17.1/bin/cmake -E
34  cmake_depends "Unix Makefiles"
35  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
36  eOnyia/cktmp/package-set-sane/source
37  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
38  eOnyia/cktmp/package-set-sane/source
39  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
40  eOnyia/cktmp/package-set-sane/derived
41  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
42  eOnyia/cktmp/package-set-sane/derived
43  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
44  eOnyia/cktmp/package-set-sane/derived/CMakeFiles/test_sv_set.dir/DependInfo.cmak
45  e --color=
46  Scanning dependencies of target test_sv_set
47  gmake[3]: Leaving directory
48  '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
49  deOnyia/cktmp/package-set-sane/derived'
50  /usr/bin/gmake  -f CMakeFiles/test_sv_set.dir/build.make
51  CMakeFiles/test_sv_set.dir/build
52  gmake[3]: Entering directory
53  '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
54  deOnyia/cktmp/package-set-sane/derived'
55  [ 50%] Building CXX object CMakeFiles/test_sv_set.dir/app/test_sv_set.cpp.o
56  /home/frodo/public/ugls_lab-4.0.70/bin/c++
57  -I/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
58  udeOnyia/cktmp/package-set-sane/source/include  -pedantic-errors -std=gnu++17
59  -o CMakeFiles/test_sv_set.dir/app/test_sv_set.cpp.o -c
60  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
61  eOnyia/cktmp/package-set-sane/source/app/test_sv_set.cpp
62  In file included from
```

```
63   /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
64   eOnyia/cktmp/package-set-sane/source/app/test_sv_set.cpp:6:
65   /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
66   eOnyia/cktmp/package-set-sane/source/include/ra/sv_set.hpp: In instantiation of
67   'ra::container::sv_set<Key, Compare>& ra::container::sv_set<Key,
68   Compare>::operator=(const ra::container::sv_set<Key, Compare>&) [with Key =
69   char; Compare =
70   std::less<char>]':
71   /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4
72   /cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/test_sv_set.cpp:38:5
73   :   required from 'void test() [with T = char; C = std::less<char>]'
74   /home/judeo
75   nyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktm
76   p/package-set-sane/source/app/test_sv_set.cpp:72:30:   required from here
77   /home/
78   judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia
79   /cktmp/package-set-sane/source/include/ra/sv_set.hpp:129:41: error: 'grow' was n
80   ot declared in this scope
81   129  |      if(other.size() > capacity()) {grow(other
82   .size());}}
83        |                         ~~~~^~~~~~~~~~~~~
84   /home/
85   judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia
86   /cktmp/package-set-sane/source/include/ra/sv_set.hpp: In instantiation of 'ra::c
87   ontainer::sv_set<Key, Compare>::sv_set(ra::container::sv_set<Key, Compare>::orde
88   red_and_unique_range, InputIterator, std::size_t) [with InputIterator = std::_Fw
89   d_list_const_iterator<char>; Key = char; Compare = std::less<char>; std::size_t
90   = long unsigned int]':
91   /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Ass
92   gn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/test_sv_set.cpp:
93   64:16:   required from 'void test() [with T = char; C = std::less<char>]'
94   /home/
95   judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia
96   /cktmp/package-set-sane/source/app/test_sv_set.cpp:72:30:   required from here
97   /
98   home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jude
99   Onyia/cktmp/package-set-sane/source/include/ra/sv_set.hpp:68:20: error: no match
100  for 'operator+' (operand types are 'std::_Fwd_list_const_iterator<char>' and 's
101  td::size_t' (aka 'long unsigned int'))
102  68  |      insert(*(first+i));
103      |
104      |             ~~~~~~^~~
105  In file included from /home/frodo/public/ugls_lab-4.0.70/
106  packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_algobase.h:67,
107      |                  fr
108  om /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/
109  char_traits.h:39,
110      |                  from /home/frodo/public/ugls_lab-4.0.70/packa
111  ges/gcc-9.3.0/include/c++/9.3.0/ios:40,
112      |                  from /home/frodo/public
113  /ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
114      |
115      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/
116  iostream:39,
117      |                  from /home/judeonyia/Documents/ECE596C_Assignments
118  /ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/test
119  _sv_set.cpp:1:
120  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
121  /9.3.0/bits/stl_iterator.h:423:5: note: candidate: 'template<class _Iterator> co
122  nstexpr std::reverse_iterator<_Iterator> std::operator+(typename std::reverse_it
123  erator<_Iterator>::difference_type, const std::reverse_iterator<_Iterator>&)'
124
```

```
125  423  |      operator+(typename reverse_iterator<_Iterator>::difference_type __n,
126      |
127      |      ^~~~~~~~
128  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/includ
129  e/c++/9.3.0/bits/stl_iterator.h:423:5: note:   template argument deduction/subst
130  itution failed:
131  In file included from /home/judeonyia/Documents/ECE596C_Assignme
132  nts/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/t
133  est_sv_set.cpp:6:
134  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/
135  cpp_containers-JudeOnyia/cktmp/package-set-sane/source/include/ra/sv_set.hpp:68:
136  20: note:   mismatched types 'const std::reverse_iterator<_Iterator>' and 'std::
137  size_t' {aka 'long unsigned int'}
138  68  |      insert(*(first+i));
139      |
140      |             ~~~~~~^~~
141  In file included from /home/frodo/public/ugls_lab-4.0.70/packa
142  ges/gcc-9.3.0/include/c++/9.3.0/bits/stl_algobase.h:67,
143      |                  from /h
144  ome/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/char_
145  traits.h:39,
146      |                  from /home/frodo/public/ugls_lab-4.0.70/packages/g
147  cc-9.3.0/include/c++/9.3.0/ios:40,
148      |                  from /home/frodo/public/ugls
149  _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
150      |                  fr
151  om /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostr
152  eam:39,
153      |                  from /home/judeonyia/Documents/ECE596C_Assignments/ECE5
154  96C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/test_sv_s
155  et.cpp:1:
156  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.
157  0/bits/stl_iterator.h:1219:5: note: candidate: 'template<class _Iterator> conste
158  xpr std::move_iterator<_IteratorL> std::operator+(typename std::move_iterator<_I
159  teratorL>::difference_type, const std::move_iterator<_IteratorL>&)'
160  1219  |
161  operator+(typename move_iterator<_Iterator>::difference_type __n,
162      |                   ^~
163      ~~~~~~
164  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/b
165  its/stl_iterator.h:1219:5: note:   template argument deduction/substitution fail
166  ed:
167  In file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_
168  Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/test_sv_set.c
169  pp:6:
170  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containe
171  rs-JudeOnyia/cktmp/package-set-sane/source/include/ra/sv_set.hpp:68:20: note:
172  mismatched types 'const std::move_iterator<_IteratorL>' and 'std::size_t' {aka '
173  long unsigned int'}
174  68  |      insert(*(first+i));
175      |                   ~~~~~~
176  ^~~
177  In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
178  include/c++/9.3.0/string:55,
179      |                  from /home/frodo/public/ugls_lab-4
180  .0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
181      |
182      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3
183  .0/bits/ios_base.h:41,
184      |                  from /home/frodo/public/ugls_lab-4.0.70/
185  packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
186      |                  from /home/frodo/p
```

```
187  ublic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
188      |
189      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9
190  .3.0/iostream:39,
191      |                  from /home/judeonyia/Documents/ECE596C_Assign
192  ments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app
193  /test_sv_set.cpp:1:
194  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/includ
195  e/c++/9.3.0/bits/basic_string.h:6020:5: note: candidate: 'template<class _CharT,
196  class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std
197  ::operator+(const basic_string<_CharT, _Traits, _Allocator>&, const std::ba
198  sic_string<_CharT, _Traits, _Allocator>&)'
199  6020  |      operator+(const basic_str
200  ing<_CharT, _Traits, _Alloc>& __lhs,
201      |            ^~~~~~~~
202  /home/frodo/public/ugl
203  s_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6020:5: no
204  te:   template argument deduction/substitution failed:
205  In file included from /ho
206  me/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOn
207  yia/cktmp/package-set-sane/source/app/test_sv_set.cpp:6:
208  /home/judeonyia/Documen
209  ts/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-se
210  t_sane/source/include/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterato
211  r<char>' is not derived from 'const std::basic_string<_CharT, _Traits, _Allocato
212  r>'
213  68  |      insert(*(first+i));
214      |                   ~~~~~~^~~
215  In file incl
216  uded from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.
217  0/string:56,
218      |                  from /home/frodo/public/ugls_lab-4.0.70/packages/g
219  cc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
220      |                  from /home
221  /frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base
222  .h:41,
223      |                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3
224  .0/include/c++/9.3.0/ios:42,
225      |                  from /home/frodo/public/ugls_lab-4
226  .0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
227      |                  from /ho
228  me/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39
229      |,
230      |                  from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_As
231  sgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/test_sv_set.cpp
232  :1:
233  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits
234  /basic_string.tcc:1158:5: note: candidate: 'template<class _CharT, class _Traits
235  , class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(co
236  nst _CharT*, const std::basic_string<_CharT, _Traits, _Allocator>&)'
237  1158  |
238  operator+(const _CharT* __lhs,
239      |            ^~~~~~~~
240  /home/frodo/public/ugls_lab
241  -4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.tcc:1158:5: note:
242  template argument deduction/substitution failed:
243  In file included from /home/
244  judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia
245  /cktmp/package-set-sane/source/app/test_sv_set.cpp:6:
246  /home/judeonyia/Documents/
247  ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-s
248  ane/source/include/ra/sv_set.hpp:68:20: note:   mismatched types 'const _CharT*'
```

```
249    and `std::_Fwd_list_const_iterator<char>´
250     68 |       insert(*(first+i));
251        |
252        |                  ~~~~~~^~~
253  In file included from /home/frodo/public/ugls_lab-4.0
254  .70/packages/gcc-9.3.0/include/c++/9.3.0/string:56,
255                   from /home/
256  frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_cl
257  asses.h:40,
258                   from /home/frodo/public/ugls_lab-4.0.70/packages/gc
259  c-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
260                   from /home/frodo/
261  public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
262
263     from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.
264  0/ostream:38,
265                   from /home/frodo/public/ugls_lab-4.0.70/packages/
266  gcc-9.3.0/include/c++/9.3.0/iostream:39,
267                   from /home/judeonyia/D
268  ocuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/pack
269  age-set_sane/source/app/test_sv_set.cpp:1:
270  /home/frodo/public/ugls_lab-4.0.70/pa
271  ckages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.tcc:1174:5: note: candidate
272  : `template<class _CharT, class _Traits, class _Alloc> std::basic_string<_CharT,
273   _Traits, _Allocator> std::operator+(_CharT, const std::basic_string<_CharT, _Tr
274  aits, _Allocator>&)´
275   1174 |       operator+(_CharT __lhs, const basic_string<_Cha
276  rT, _Traits, _Alloc>& __rhs)
277        |       ^~~~~~~~
278  /home/frodo/public/ugls_lab-4.
279  0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.tcc:1174:5: note:
280  template argument deduction/substitution failed:
281  In file included from /home/jud
282  eonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/ck
283  tmp/package-set_sane/source/app/test_sv_set.cpp:6:
284  /home/judeonyia/Documents/ECE
285  596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane
286  /source/include/ra/sv_set.hpp:68:20: note:  mismatched types `const std::basic_
287  string<_CharT, _Traits, _Allocator>´ and `std::size_t´ {aka `long unsigned int´}
288
289     68 |       insert(*(first+i));
290        |              ~~~~~~^~~
291  In file include
292  d from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/s
293  tring:55,
294                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-
295  9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
296                   from /home/fr
297  odo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:
298  41,
299                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
300  include/c++/9.3.0/ios:42,
301                   from /home/frodo/public/ugls_lab-4.0.
302  70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
303                   from /home/
304  frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
305
306                   from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn
307  _4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
308
309  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ba
310  sic_string.h:6057:5: note: candidate: `template<class _CharT, class _Traits, cla
```

```
311  ss _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(const s
312  td::basic_string<_CharT, _Traits, _Allocator>&, const _CharT*)´
313   6057 |     oper
314  ator+(const basic_string<_CharT, _Traits, _Alloc>& __lhs,
315        |     ^~~~~~~~
316  /
317  home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basi
318  c_string.h:6057:5: note:  template argument deduction/substitution failed:
319  In f
320  ile included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/
321  cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
322  /h
323  ome/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeO
324  nyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:  `std::_F
325  wd_list_const_iterator<char>´ is not derived from `const std::basic_string<_Char
326  T, _Traits, _Allocator>´
327     68 |       insert(*(first+i));
328        |              ~
329  ~~~~~^~~
330  In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9
331  .3.0/include/c++/9.3.0/string:55,
332                   from /home/frodo/public/ugls_
333  lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
334
335                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c+
336  +/9.3.0/bits/ios_base.h:41,
337                   from /home/frodo/public/ugls_lab-4.
338  0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
339                   from /home/fr
340  odo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
341
342                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/
343  c++/9.3.0/iostream:39,
344                   from /home/judeonyia/Documents/ECE596C
345  ssignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/sourc
346  e/app/test_sv_set.cpp:1:
347  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/i
348  nclude/c++/9.3.0/bits/basic_string.h:6073:5: note: candidate: `template<class _C
349  harT, class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator
350  > std::operator+(const std::basic_string<_CharT, _Traits, _Allocator>&, _CharT)´
351
352   6073 |       operator+(const basic_string<_CharT, _Traits, _Alloc>& __lhs, _Char
353  T __rhs)
354        |       ^~~~~~~~
355  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.
356  3.0/include/c++/9.3.0/bits/basic_string.h:6073:5: note:  template argument dedu
357  ction/substitution failed:
358  In file included from /home/judeonyia/Documents/ECE59
359  6C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/s
360  ource/app/test_sv_set.cpp:6:
361  /home/judeonyia/Documents/ECE596C_Assignments/ECE59
362  6C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_
363  set.hpp:68:20: note:  `std::_Fwd_list_const_iterator<char>´ is not derived from
364  `const std::basic_string<_CharT, _Traits, _Allocator>´
365     68 |       insert(*(fi
366  rst+i));
367        |                  ~~~~~~^~~
368  In file included from /home/frodo/public
369  /ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
370
371     from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/b
372  its/locale_classes.h:40,
```

```
373                   from /home/frodo/public/ugls_lab-4.0.7
374  0/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
375                   from
376   /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
377
378                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inc
379  lude/c++/9.3.0/ostream:38,
380                   from /home/frodo/public/ugls_lab-4.0
381  .70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
382                   from /hom
383  e/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOny
384  ia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
385  /home/frodo/public/ugls_
386  lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6085:5: note
387  : candidate: `template<class _CharT, class _Traits, class _Alloc> std::basic_str
388  ing<_CharT, _Traits, _Allocator> std::operator+(std::basic_string<_CharT, _Trait
389  s, _Allocator>&&, const std::basic_string<_CharT, _Traits, _Allocator>&)´
390   6085
391  |       operator+(basic_string<_CharT, _Traits, _Alloc>&& __lhs,
392        |            ^~~~~
393  ~~~
394  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits
395  /basic_string.h:6085:5: note:   template argument deduction/substitution failed:
396
397  In file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Ass
398  gn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:
399  6:
400  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-
401  JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:  `st
402  d::_Fwd_list_const_iterator<char>´ is not derived from `std::basic_string<_CharT
403  , _Traits, _Allocator>´
404     68 |       insert(*(first+i));
405        |                  ~~
406  ~~~~^~~
407  In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.
408  3.0/include/c++/9.3.0/string:55,
409                   from /home/frodo/public/ugls_l
410  ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
411
412             from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
413  /9.3.0/bits/ios_base.h:41,
414                   from /home/frodo/public/ugls_lab-4.0
415  .70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
416                   from /home/fro
417  do/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
418
419                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c
420  ++/9.3.0/iostream:39,
421                   from /home/judeonyia/Documents/ECE596C_As
422  signments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source
423  /app/test_sv_set.cpp:1:
424  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/in
425  clude/c++/9.3.0/bits/basic_string.h:6091:5: note: candidate: `template<class _Ch
426  arT, class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator>
427   std::operator+(const std::basic_string<_CharT, _Traits, _Allocator>&, std::basi
428  c_string<_CharT, _Traits, _Allocator>&&)´
429   6091 |       operator+(const basic_stri
430  ng<_CharT, _Traits, _Alloc>& __lhs,
431        |       ^~~~~~~~
432  /home/frodo/public/ugls
433  _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6091:5: not
434  e:   template argument deduction/substitution failed:
```

```
435  In file included from /hom
436  e/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOny
437  ia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
438  /home/judeonyia/Document
439  s/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set
440  _sane/source/include/ra/sv_set.hpp:68:20: note:   `std::_Fwd_list_const_iterator
441  <char>´ is not derived from `const std::basic_string<_CharT, _Traits, _Allocator
442  >´
443     68 |       insert(*(first+i));
444        |                  ~~~~~~^~~
445  In file inclu
446  ded from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0
447  /string:55,
448                   from /home/frodo/public/ugls_lab-4.0.70/packages/gc
449  c-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
450                   from /home/
451  frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.
452  h:41,
453                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.
454  0/include/c++/9.3.0/ios:42,
455                   from /home/frodo/public/ugls_lab-4.
456  0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
457                   from /hom
458  e/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
459
460                   from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Ass
461  gn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:
462  1:
463  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/
464  basic_string.h:6097:5: note: candidate: `template<class _CharT, class _Traits, c
465  lass _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(std::
466  basic_string<_CharT, _Traits, _Allocator>&&, std::basic_string<_CharT, _Traits,
467  _Allocator>&&)´
468   6097 |       operator+(basic_string<_CharT, _Traits, _Alloc>&& __
469  lhs,
470        |       ^~~~~~~~
471  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
472  include/c++/9.3.0/bits/basic_string.h:6097:5: note:   template argument deductio
473  n/substitution failed:
474  In file included from /home/judeonyia/Documents/ECE596C_A
475  ssignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/sourc
476  e/app/test_sv_set.cpp:6:
477  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_A
478  ssgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.
479  hpp:68:20: note:   `std::_Fwd_list_const_iterator<char>´ is not derived from `st
480  d::basic_string<_CharT, _Traits, _Allocator>´
481     68 |       insert(*(first+i));
482
483        |                  ~~~~~~^~~
484  In file included from /home/frodo/public/ugls_lab-
485  4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
486                   from /ho
487  me/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale
488  _classes.h:40,
489                   from /home/frodo/public/ugls_lab-4.0.70/packages
490  /gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
491                   from /home/fro
492  do/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
493
494         from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9
495  .3.0/ostream:38,
496                   from /home/frodo/public/ugls_lab-4.0.70/packag
```

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497  es/gcc-9.3.0/include/c++/9.3.0/iostream:39,
498                   from /home/judeonyi
499  a/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/p
500  ackage-set_sane/source/app/test_sv_set.cpp:1:
501  /home/frodo/public/ugls_lab-4.0.70
502  /packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6109:5: note: candidat
503  e: 'template<class _CharT, class _Traits, class _Alloc> std::basic_string<_CharT
504  , _Traits, _Allocator> std::operator+(const _CharT*, std::basic_string<_CharT, _
505  Traits, _Allocator>&&)'
506   6109 |     operator+(const _CharT* __lhs,
507        |     ^
508  ~~~~~~~
509  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/
510  bits/basic_string.h:6109:5: note:   template argument deduction/substitution fai
511  led:
512  In file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C
513  _Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.
514  cpp:6:
515  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_contain
516  ers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:
517   mismatched types 'const _CharT*' and 'std::_Fwd_list_const_iterator<char>'
518      6
519  8 |     insert(*(first+i));
520        |            ~~~~~~^~~
521  In file included fro
522  m /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string
523  :55,
524                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0
525  /include/c++/9.3.0/bits/locale_classes.h:40,
526                   from /home/frodo/p
527  ublic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
528
529                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inclu
530  de/c++/9.3.0/ios:42,
531                   from /home/frodo/public/ugls_lab-4.0.70/pa
532  ckages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
533                   from /home/frodo
534  /public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
535
536                   from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cp
537  p_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
538  /hom
539  e/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_s
540  tring.h:6115:5: note: candidate: 'template<class _CharT, class _Traits, class _A
541  lloc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(_CharT, std:
542  :basic_string<_CharT, _Traits, _Allocator>&&)'
543   6115 |     operator+(_CharT __lh
544  s,
545        |     ^~~~~~~~
546  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/in
547  clude/c++/9.3.0/bits/basic_string.h:6115:5: note:   template argument deduction/
548  substitution failed:
549  In file included from /home/judeonyia/Documents/ECE596C_Ass
550  ignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/
551  app/test_sv_set.cpp:6:
552  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Ass
553  gn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hp
554  p:68:20: note:   mismatched types 'std::basic_string<_CharT, _Traits, _Allocator
555  >' and 'std::size_t' {aka 'long unsigned int'}
556      68 |     insert(*(first+i));
557        |            ~~~~~~^~~
558
```

```
559  In file included from /home/frodo/public/ugls_lab
560  -4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
561                   from /h
562  ome/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/local
563  e_classes.h:40,
564                   from /home/frodo/public/ugls_lab-4.0.70/package
565  s/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
566                   from /home/fr
567  odo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
568
569                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/
570  9.3.0/ostream:38,
571                   from /home/frodo/public/ugls_lab-4.0.70/packa
572  ges/gcc-9.3.0/include/c++/9.3.0/iostream:39,
573                   from /home/judeony
574  ia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/
575  package-set_sane/source/app/test_sv_set.cpp:1:
576  /home/frodo/public/ugls_lab-4.0.7
577  0/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6121:5: note: candida
578  te: 'template<class _CharT, class _Traits, class _Alloc> std::basic_string<_Char
579  T, _Traits, _Allocator> std::operator+(std::basic_string<_CharT, _Traits, _Alloc
580  ator>&&, const _CharT*)'
581   6121 |     operator+(basic_string<_CharT, _Traits, _Al
582  loc>&& __lhs,
583        |     ^~~~~~~~
584  /home/frodo/public/ugls_lab-4.0.70/packages/g
585  cc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6121:5: note:   template argument
586   deduction/substitution failed:
587  In file included from /home/judeonyia/Documents/
588  ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_s
589  ane/source/app/test_sv_set.cpp:6:
590  /home/judeonyia/Documents/ECE596C_Assignments/
591  ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/r
592  a/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterator<char>' is not derived
593   from 'std::basic_string<_CharT, _Traits, _Allocator>'
594      68 |     insert(*(fir
595  st+i));
596        |            ~~~~~~^~~
597  In file included from /home/frodo/public/
598  ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
599
600   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bi
601  ts/locale_classes.h:40,
602                   from /home/frodo/public/ugls_lab-4.0.70
603  /packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
604                   from
605  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
606
607                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/incl
608  ude/c++/9.3.0/ostream:38,
609                   from /home/frodo/public/ugls_lab-4.0.
610  70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
611                   from /home
612  /judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyi
613  a/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
614  /home/frodo/public/ugls_l
615  ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6127:5: note:
616   candidate: 'template<class _CharT, class _Traits, class _Alloc> std::basic_stri
617  ng<_CharT, _Traits, _Allocator> std::operator+(std::basic_string<_CharT, _Traits
618  , _Allocator>&&, _CharT)'
619   6127 |     operator+(basic_string<_CharT, _Traits, _A
620  lloc>&& __lhs,
```

```
621        |     ^~~~~~~~
622  /home/frodo/public/ugls_lab-4.0.70/packages/
623  gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6127:5: note:   template argumen
624  t deduction/substitution failed:
625  In file included from /home/judeonyia/Documents
626  /ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_
627  sane/source/app/test_sv_set.cpp:6:
628  /home/judeonyia/Documents/ECE596C_Assignments
629  /ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/
630  ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterator<char>' is not derive
631  d from 'std::basic_string<_CharT, _Traits, _Allocator>'
632      68 |     insert(*(fi
633  rst+i));
634        |            ~~~~~~^~~
635  In file included from /home/frodo/public
636  /ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/vector:68,
637
638   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/f
639  unctional:62,
640                   from /home/judeonyia/Documents/ECE596C_Assignment
641  s/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/tes
642  t_sv_set.cpp:3:
643  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c+
644  +/9.3.0/bits/stl_bvector.h:303:3: note: candidate: 'std::_Bit_iterator std::oper
645  ator+(std::ptrdiff_t, const std::_Bit_iterator&)'
646    303 |     operator+(ptrdiff_t
647  __n, const _Bit_iterator& __x)
648        |     ^~~~~~~~
649  /home/frodo/public/ugls_lab-4.
650  0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_bvector.h:303:23: note:   no
651  known conversion for argument 1 from 'std::_Fwd_list_const_iterator<char>' to 's
652  td::ptrdiff_t' {aka 'long int'}
653    303 |     operator+(ptrdiff_t __n, const _Bit_it
654  erator& __x)
655        |               ~~~~~~~~~~^~~
656  /home/frodo/public/ugls_lab-4.0.7
657  0/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_bvector.h:393:3: note: candidate
658  : 'std::_Bit_const_iterator std::operator+(std::ptrdiff_t, const std::_Bit_const
659  _iterator&)'
660    393 |     operator+(ptrdiff_t __n, const _Bit_const_iterator& __x)
661
662        |     ^~~~~~~~
663  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include
664  /c++/9.3.0/bits/stl_bvector.h:393:23: note:   no known conversion for argument 1
665   from 'std::_Fwd_list_const_iterator<char>' to 'std::ptrdiff_t' {aka 'long int'}
666
667    393 |     operator+(ptrdiff_t __n, const _Bit_const_iterator& __x)
668        |               ~~~~~~~~~~^~~
669  In file included from /home/judeonyia/Documents/ECE596C_As
670  signments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source
671  /app/test_sv_set.cpp:6:
672  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_As
673  sgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.h
674  pp: In instantiation of 'ra::container::sv_set<Key, Compare>& ra::container::sv_
675  set<Key, Compare>::operator=(const ra::container::sv_set<Key, Compare>&) [with K
676  ey = int; Compare = std::greater<int>]':
677  /home/judeonyia/Documents/ECE596C_Assig
678  nments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/ap
679  p/test_sv_set.cpp:38:5:   required from 'void test() [with T = int; C = std::gre
680  ater<int>]'
681  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_co
682  ntainers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:73:31:   re
```

```
683  ntainers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:73:31:   re
684  quired from here
685  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/c
686  pp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:129:
687  41: error: 'grow' was not declared in this scope
688    129 |     if(other.size() >
689  capacity()) {grow(other.size());}
690                                        ~~
691  ~~^~~~~~~~~~~~~~
692  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/c
693  pp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp: In
694  instantiation of 'ra::container::sv_set<Key, Compare>::sv_set(ra::container::sv_
695  set<Key, Compare>::ordered_and_unique_range, InputIterator, std::size_t) [with I
696  nputIterator = std::_Fwd_list_const_iterator<int>; Key = int; Compare = std::gre
697  ater<int>; std::size_t = long unsigned int]':
698  /home/judeonyia/Documents/ECE596C_
699  Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/sour
700  ce/app/test_sv_set.cpp:64:16:   required from 'void test() [with T = int; C = st
701  d::greater<int>]'
702  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/
703  cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:73:31
704  :   required from here
705  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Ass
706  gn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hp
707  p:68:20: error: no match for 'operator+' (operand types are 'std::_Fwd_list_cons
708  t_iterator<int>' and 'std::size_t' {aka 'long unsigned int'})
709      68 |     inser
710  t(*(first+i));
711        |            ~~~~~~^~~
712  In file included from /home/frodo/
713  public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_algobase.h:
714  67,
715                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
716  include/c++/9.3.0/bits/char_traits.h:39,
717                   from /home/frodo/publi
718  c/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:40,
719
720   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ost
721  ream:38,
722                   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9
723  .3.0/include/c++/9.3.0/iostream:39,
724                   from /home/judeonyia/Docume
725  nts/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-s
726  et_sane/source/app/test_sv_set.cpp:1:
727  /home/frodo/public/ugls_lab-4.0.70/package
728  s/gcc-9.3.0/include/c++/9.3.0/bits/stl_iterator.h:423:5: note: candidate: 'templ
729  ate<class _Iterator> constexpr std::reverse_iterator<_Iterator> std::operator+(t
730  ypename std::reverse_iterator<_Iterator>::difference_type, const std::reverse_it
731  erator<_Iterator>&)'
732    423 |     operator+(typename reverse_iterator<_Iterator>:
733  :difference_type __n,
734        |     ^~~~~~~~
735  /home/frodo/public/ugls_lab-4.0.70/pa
736  ckages/gcc-9.3.0/include/c++/9.3.0/bits/stl_iterator.h:423:5: note:   template a
737  rgument deduction/substitution failed:
738  In file included from /home/judeonyia/Doc
739  uments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/packag
740  e-set_sane/source/app/test_sv_set.cpp:6:
741  /home/judeonyia/Documents/ECE596C_Assig
742  nments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/in
743  clude/ra/sv_set.hpp:68:20: note:   mismatched types 'const std::reverse_iterator
744  <_Iterator>' and 'std::size_t' {aka 'long unsigned int'}
```

```
745    68 |        insert(*(f
746 irst+i));
747    |            ~~~~~~^~~
748 In file included from /home/frodo/publi
749 c/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_algobase.h:67,
750
751              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inclu
752 de/c++/9.3.0/bits/char_traits.h:39,
753              from /home/frodo/public/ugl
754 s_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:40,
755              from
756 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:
757 38,
758              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
759 include/c++/9.3.0/iostream:39,
760              from /home/judeonyia/Documents/E
761 CE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sa
762 ne/source/app/test_sv_set.cpp:1:
763 /home/frodo/public/ugls_lab-4.0.70/packages/gcc
764 -9.3.0/include/c++/9.3.0/bits/stl_iterator.h:1219:5: note: candidate: 'template<
765 class _Iterator> constexpr std::move_iterator<_IteratorL> std::operator+(typenam
766 e std::move_iterator<_IteratorL>::difference_type, const std::move_iterator<_Ite
767 ratorL>&)'
768  1219 |     operator+(typename move_iterator<_Iterator>::difference_t
769 ype __n,
770    |     ^~~~~~~~
771 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.
772 3.0/include/c++/9.3.0/bits/stl_iterator.h:1219:5: note:  template argument dedu
773 ction/substitution failed:
774 In file included from /home/judeonyia/Documents/ECE59
775 6C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/s
776 ource/app/test_sv_set.cpp:6:
777 /home/judeonyia/Documents/ECE596C_Assignments/ECE59
778 6C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_
779 set.hpp:68:20: note:  mismatched types 'const std::move_iterator<_IteratorL>' a
780 nd 'std::size_t' {aka 'long unsigned int'}
781    68 |        insert(*(first+i));
782
783    |            ~~~~~~^~~
784 In file included from /home/frodo/public/ugls_lab-4.0
785 .70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
786              from /home/
787 frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_cl
788 asses.h:40,
789              from /home/frodo/public/ugls_lab-4.0.70/packages/gc
790 c-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
791              from /home/frodo/
792 public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
793              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.
794 0/ostream:38,
795              from /home/frodo/public/ugls_lab-4.0.70/packages/
796 gcc-9.3.0/include/c++/9.3.0/iostream:39,
797              from /home/judeonyia/D
798 ocuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/pack
799 age-set_sane/source/app/test_sv_set.cpp:1:
800 /home/frodo/public/ugls_lab-4.0.70/pa
801 ckages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6020:5: note: candidate:
802 'template<class _CharT, class _Traits, class _Alloc> std::basic_string<_CharT,
803 _Traits, _Allocator> std::operator+(const std::basic_string<_CharT, _Traits, _All
804 ocator>&, const std::basic_string<_CharT, _Traits, _Allocator>&)'
805  6020 |    op
806
```

```
807 erator+(const basic_string<_CharT, _Traits, _Alloc>& __lhs,
808    |     ^~~~~~~~
809
810 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ba
811 sic_string.h:6020:5: note:  template argument deduction/substitution failed:
812 In
813  file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_
814 4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
815
816 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
817 eOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:  'std::
818 _Fwd_list_const_iterator<int>' is not derived from 'const std::basic_string<_Cha
819 rT, _Traits, _Allocator>'
820    68 |        insert(*(first+i));
821
822    ~~~~~~^~~
823 In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-
824 9.3.0/include/c++/9.3.0/string:56,
825              from /home/frodo/public/ugls
826 _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
827
828              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c
829 ++/9.3.0/bits/ios_base.h:41,
830              from /home/frodo/public/ugls_lab-4
831 .0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
832              from /home/f
833 rodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
834
835              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include
836 /c++/9.3.0/iostream:39,              from /home/judeonyia/Documents/ECE596C_
837 Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/sour
838 ce/app/test_sv_set.cpp:1:
839 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
840 include/c++/9.3.0/bits/basic_string.tcc:1158:5: note: candidate: 'template<class
841 _CharT, class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Alloca
842 tor> std::operator+(const _CharT*, const std::basic_string<_CharT, _Traits, _All
843 ocator>&)'
844  1158 |     operator+(const _CharT* __lhs,
845    |     ^~~~~~~~
846 /home
847 /frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_st
848 ring.tcc:1158:5: note:  template argument deduction/substitution failed:
849 In fil
850 e included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cp
851 p_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
852 /hom
853 e/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOny
854 ia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:  mismatched
855 types 'const _CharT*' and 'std::_Fwd_list_const_iterator<int>'
856    68 |    ins
857 ert(*(first+i));
858    |        ~~~~~~^~~
859 In file included from /home/frod
860 o/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:56,
861
862              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
863 /9.3.0/bits/locale_classes.h:40,
864              from /home/frodo/public/ugls_l
865 ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
866
867              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0
```

```
869 /ios:42,
870              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9
871 .3.0/include/c++/9.3.0/ostream:38,
872              from /home/frodo/public/ugls
873 _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
874              f
875 rom /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers
876 -JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
877 /home/frodo/publ
878 ic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.tcc:11
879 74:5: note: candidate: 'template<class _CharT, class _Traits, class _Alloc> std:
880 :basic_string<_CharT, _Traits, _Allocator> std::operator+(_CharT, const std::bas
881 ic_string<_CharT, _Traits, _Allocator>&)'
882  1174 |     operator+(_CharT __lhs, co
883 nst basic_string<_CharT, _Traits, _Alloc>& __rhs)
884    |     ^~~~~~~~
885 /home/fro
886 do/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string
887 .tcc:1174:5: note:  template argument deduction/substitution failed:
888 In file in
889 cluded from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_co
890 ntainers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
891 /home/ju
892 deonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/c
893 ktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:  mismatched typ
894 es 'const std::basic_string<_CharT, _Traits, _Allocator>' and 'std::size_t' {aka
895 'long unsigned int'}
896    68 |        insert(*(first+i));
897    |            ~~~~
898 ~~^~~
899 In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.
900 0/include/c++/9.3.0/string:55,
901              from /home/frodo/public/ugls_lab
902 -4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
903
904              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9
905 .3.0/bits/ios_base.h:41,
906              from /home/frodo/public/ugls_lab-4.0.7
907 0/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
908              from /home/frodo
909 /public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
910
911              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
912 /9.3.0/iostream:39,
913              from /home/judeonyia/Documents/ECE596C_Assi
914 gnments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/a
915 pp/test_sv_set.cpp:1:
916 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/incl
917 ude/c++/9.3.0/bits/basic_string.h:6057:5: note: candidate: 'template<class _Char
918 T, class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> s
919 td::operator+(const std::basic_string<_CharT, _Traits, _Allocator>&, const _Char
920 T*)'
921  6057 |     operator+(const basic_string<_CharT, _Traits, _Alloc>& __lhs,
922
923    |        ^~~~~~~~
924 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/includ
925 e/c++/9.3.0/bits/basic_string.h:6057:5: note:  template argument deduction/subs
926 titution failed:
927 In file included from /home/judeonyia/Documents/ECE596C_Assignm
928 ents/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/
929 test_sv_set.cpp:6:
930 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4
```

```
931 /cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68
932 :20: note:  'std::_Fwd_list_const_iterator<int>' is not derived from 'const std
933 ::basic_string<_CharT, _Traits, _Allocator>'
934    68 |        insert(*(first+i));
935
936    |            ~~~~~~^~~
937 In file included from /home/frodo/public/ugls_lab-4
938 .0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
939              from /hom
940 e/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_
941 classes.h:40,
942              from /home/frodo/public/ugls_lab-4.0.70/packages/
943 gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
944              from /home/frod
945 o/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
946
947              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.
948 3.0/ostream:38,
949              from /home/frodo/public/ugls_lab-4.0.70/package
950 s/gcc-9.3.0/include/c++/9.3.0/iostream:39,
951              from /home/judeonyia
952 /Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/pa
953 ckage-set_sane/source/app/test_sv_set.cpp:1:
954 /home/frodo/public/ugls_lab-4.0.70/
955 packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6073:5: note: candidate
956 : 'template<class _CharT, class _Traits, class _Alloc> std::basic_string<_CharT,
957 _Traits, _Allocator> std::operator+(const std::basic_string<_CharT, _Traits, _A
958 llocator>&, _CharT)'
959  6073 |     operator+(const basic_string<_CharT, _Traits, _
960 Alloc>& __lhs, _CharT __rhs)
961    |        ^~~~~~~~
962 /home/frodo/public/ugls_lab-4.
963 0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6073:5: note:  te
964 mplate argument deduction/substitution failed:
965 In file included from /home/judeo
966 nyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktm
967 p/package-set_sane/source/app/test_sv_set.cpp:6:
968 /home/judeonyia/Documents/ECE59
969 6C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/s
970 ource/include/ra/sv_set.hpp:68:20: note:  'std::_Fwd_list_const_iterator<int>'
971 is not derived from 'const std::basic_string<_CharT, _Traits, _Allocator>'
972    68
973    |        insert(*(first+i));
974    |            ~~~~~~^~~
975 In file included from
976  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:
977 55,
978              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
979 include/c++/9.3.0/bits/locale_classes.h:40,
980              from /home/frodo/pu
981 blic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
982
983              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/includ
984 e/c++/9.3.0/ios:42,              from /home/frodo/public/ugls_lab-4.0.70/pac
985 kages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
986              from /home/frodo/
987 public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
988
989              from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp
990 _containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
991 /home
992
```

```
993  /frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_st
994  ring.h:6085:5: note: candidate: 'template<class _CharT, class _Traits, class _Al
995  loc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(std::basic_st
996  ring<_CharT, _Traits, _Allocator>&&, const std::basic_string<_CharT, _Traits, _A
997  llocator>&)'
998  6085 |     operator+(basic_string<_CharT, _Traits, _Alloc>&& __lhs
999  ,
1000      |       ^~~~~~~~
1001 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inc
1002 lude/c++/9.3.0/bits/basic_string.h:6085:5: note:   template argument deduction/s
1003 ubstitution failed:
1004 In file included from /home/judeonyia/Documents/ECE596C_Assi
1005 gnments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/a
1006 pp/test_sv_set.cpp:6:
1007 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assg
1008 n_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp
1009 :68:20: note:   'std::_Fwd_list_const_iterator<int>' is not derived from 'std::b
1010 asic_string<_CharT, _Traits, _Allocator>'
1011 68 |       insert(*(first+i));
1012
1013      |              ~~~~~~^~~
1014 In file included from /home/frodo/public/ugls_lab-4.0.
1015 70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
1016                  from /home/f
1017 rodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_cla
1018 sses.h:40,
1019                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc
1020 -9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1021                  from /home/frodo/p
1022 ublic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
1023
1024      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0
1025 /ostream:38,
1026                  from /home/frodo/public/ugls_lab-4.0.70/packages/g
1027 cc-9.3.0/include/c++/9.3.0/iostream:39,
1028                  from /home/judeonyia/Do
1029 cuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/packa
1030 ge-set_sane/source/app/test_sv_set.cpp:1:
1031 /home/frodo/public/ugls_lab-4.0.70/pac
1032 kages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6091:5: note: candidate: '
1033 template<class _CharT, class _Traits, class _Alloc> std::operator+(const std::basic_string<_CharT, _T
1034 raits, _Allocator> std::operator+(const std::basic_string<_CharT, _Traits, _Allo
1035 cator>&, std::basic_string<_CharT, _Traits, _Allocator>&&)'
1036 6091 |     operator
1037 +(const basic_string<_CharT, _Traits, _Alloc>& __lhs,
1038      |       ^~~~~~~~
1039 /home
1040 /frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_st
1041 ring.h:6091:5: note:   template argument deduction/substitution failed:
1042 In file
1043 included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_
1044 containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
1045 /home/
1046 judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia
1047 /cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:   'std::_Fwd_l
1048 ist_const_iterator<int>' is not derived from 'const std::basic_string<_CharT, _T
1049 raits, _Allocator>'
1050 68 |       insert(*(first+i));
1051      |              ~~~~~~
1052 ^~~
1053 In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
1054 include/c++/9.3.0/string:55,
```

```
1055                  from /home/frodo/public/ugls_lab-4
1056 .0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
1057
1058      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3
1059 .0/bits/ios_base.h:41,
1060                  from /home/frodo/public/ugls_lab-4.0.70/
1061 packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
1062                  from /home/frodo/p
1063 ublic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
1064
1065      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9
1066 .3.0/iostream:39,
1067                  from /home/judeonyia/Documents/ECE596C_Assign
1068 ments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app
1069 /test_sv_set.cpp:1:
1070 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/includ
1071 e/c++/9.3.0/bits/basic_string.h:6097:5: note: candidate: 'template<class _CharT,
1072  class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std
1073 ::operator+(std::basic_string<_CharT, _Traits, _Allocator>&&, std::basic_string<
1074 _CharT, _Traits, _Allocator>&&)'
1075 6097 |     operator+(basic_string<_Tra
1076 its, _Alloc>&& __lhs,
1077      |       ^~~~~~~~
1078 /home/frodo/public/ugls_lab-4.0.70/pa
1079 ckages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6097:5: note:   template
1080 argument deduction/substitution failed:
1081 In file included from /home/judeonyia/Do
1082 cuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/packa
1083 ge-set_sane/source/app/test_sv_set.cpp:6:
1084 /home/judeonyia/Documents/ECE596C_Assi
1085 gnments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/i
1086 nclude/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterator<int>' is not
1087 derived from 'std::basic_string<_CharT, _Traits, _Allocator>'
1088 68 |       inser
1089 t(*(first+i));
1090      |              ~~~~~~^~~
1091 In file included from /home/frodo/
1092 public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
1093
1094      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9
1095 .3.0/bits/locale_classes.h:40,
1096                  from /home/frodo/public/ugls_lab
1097 -4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1098
1099   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/i
1100 os:42,
1101                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3
1102 .0/include/c++/9.3.0/ostream:38,
1103                  from /home/frodo/public/ugls_l
1104 ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1105                  fro
1106 m /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
1107 udeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1108 /home/frodo/public
1109 /ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6109:5
1110 : note: candidate: 'template<class _CharT, class _Traits, class _Alloc> std::bas
1111 ic_string<_CharT, _Traits, _Allocator> std::operator+(const _CharT*, std::basic_
1112 string<_CharT, _Traits, _Allocator>&&)'
1113 6109 |     operator+(const _CharT* __lh
1114 s,
1115      |       ^~~~~~~~
1116 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/in
```

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1117 clude/c++/9.3.0/bits/basic_string.h:6109:5: note:   template argument deduction/
1118 substitution failed:
1119 In file included from /home/judeonyia/Documents/ECE596C_Ass
1120 ignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/
1121 app/test_sv_set.cpp:6:
1122 /home/judeonyia/Documents/ECE596C_Ass
1123 gn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hp
1124 p:68:20: note:   mismatched types 'const _CharT*' and 'std::_Fwd_list_const_iter
1125 ator<int>'
1126 68 |       insert(*(first+i));
1127      |              ~~~~~~^~~
1128 In fi
1129 le included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c
1130 ++/9.3.0/string:55,
1131                  from /home/frodo/public/ugls_lab-4.0.70/pac
1132 kages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
1133                  fro
1134 m /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/i
1135 os_base.h:41,
1136                  from /home/frodo/public/ugls_lab-4.0.70/packages/
1137 gcc-9.3.0/include/c++/9.3.0/ios:42,
1138                  from /home/frodo/public/ugl
1139 s_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
1140                  f
1141 rom /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iost
1142 ream:39,
1143                  from /home/judeonyia/Documents/ECE596C_Assignments/ECE
1144 596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_
1145 set.cpp:1:
1146 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3
1147 .0/bits/basic_string.h:6115:5: note: candidate: 'template<class _CharT, class _T
1148 raits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::operato
1149 r+(_CharT, std::basic_string<_CharT, _Traits, _Allocator>&&)'
1150 6115 |     operat
1151 or+(_CharT __lhs,
1152      |       ^~~~~~~~
1153 /home/frodo/public/ugls_lab-4.0.70/packag
1154 es/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6115:5: note:   template argu
1155 ment deduction/substitution failed:
1156 In file included from /home/judeonyia/Docume
1157 nts/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-s
1158 et_sane/source/app/test_sv_set.cpp:6:
1159 /home/judeonyia/Documents/ECE596C_Assignme
1160 nts/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/inclu
1161 de/ra/sv_set.hpp:68:20: note:   mismatched types 'std::basic_string<_CharT, _Tra
1162 its, _Allocator>' and 'std::size_t' {aka 'long unsigned int'}
1163 68 |       inser
1164 t(*(first+i));
1165      |              ~~~~~~^~~
1166 In file included from /home/frodo/
1167 public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
1168
1169      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9
1170 .3.0/bits/locale_classes.h:40,
1171                  from /home/frodo/public/ugls_lab
1172 -4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1173
1174   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/i
1175 os:42,
1176                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3
1177 .0/include/c++/9.3.0/ostream:38,
1178                  from /home/frodo/public/ugls_l
```

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1179 ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1180                  fro
1181 m /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
1182 udeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1183 /home/frodo/public
1184 /ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6121:5
1185 : note: candidate: 'template<class _CharT, class _Traits, class _Alloc> std::bas
1186 ic_string<_CharT, _Traits, _Allocator> std::operator+(std::basic_string<_CharT,
1187 _Traits, _Allocator>&&, const _CharT*)'
1188 6121 |     operator+(basic_string<_Char
1189 T, _Traits, _Alloc>&& __lhs,
1190      |       ^~~~~~~~
1191 /home/frodo/public/ugls_lab-4.
1192 0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6121:5: note:   te
1193 mplate argument deduction/substitution failed:
1194 In file included from /home/judeo
1195 nyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktm
1196 p/package-set_sane/source/app/test_sv_set.cpp:6:
1197 /home/judeonyia/Documents/ECE59
1198 6C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/s
1199 ource/include/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterator<int>'
1200 is not derived from 'std::basic_string<_CharT, _Traits, _Allocator>'
1201 68 |
1202   insert(*(first+i));
1203      |              ~~~~~~^~~
1204 In file included from /home
1205 /frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
1206
1207          from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/includ
1208 e/c++/9.3.0/bits/locale_classes.h:40,
1209                  from /home/frodo/public/u
1210 gls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1211
1212      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/
1213 9.3.0/ios:42,
1214                  from /home/frodo/public/ugls_lab-4.0.70/packages/
1215 gcc-9.3.0/include/c++/9.3.0/ostream:38,
1216                  from /home/frodo/public
1217 /ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1218
1219      from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_conta
1220 iners-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1221 /home/frodo
1222 /public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h
1223 :6127:5: note: candidate: 'template<class _CharT, class _Traits, class _Alloc> s
1224 td::basic_string<_CharT, _Traits, _Allocator> std::operator+(std::basic_string<_
1225 CharT, _Traits, _Allocator>&&, _CharT)'
1226 6127 |     operator+(basic_string<_Char
1227 T, _Traits, _Alloc>&& __lhs,
1228      |       ^~~~~~~~
1229 /home/frodo/public/ugls_lab-4.
1230 0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6127:5: note:   te
1231 mplate argument deduction/substitution failed:
1232 In file included from /home/judeo
1233 nyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktm
1234 p/package-set_sane/source/app/test_sv_set.cpp:6:
1235 /home/judeonyia/Documents/ECE59
1236 6C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/s
1237 ource/include/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterator<int>'
1238 is not derived from 'std::basic_string<_CharT, _Traits, _Allocator>'
1239 68 |
1240   insert(*(first+i));
```

```
1241            ~~~~~~^~~
1242  In file included from /home
1243  /frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/vector:68,
1244
1245                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/includ
1246  e/c++/9.3.0/functional:62,
1247                  from /home/judeonyia/Documents/ECE59
1248  6C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/s
1249  ource/app/test_sv_set.cpp:3:
1250  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3
1251  .0/include/c++/9.3.0/bits/stl_bvector.h:303:3: note: candidate: 'std::_Bit_itera
1252  tor std::operator+(std::ptrdiff_t, const std::_Bit_iterator&)'
1253    303 |    operato
1254  r+(ptrdiff_t __n, const _Bit_iterator& __x)
1255        |    ^~~~~~~~
1256  /home/frodo/publi
1257  c/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_bvector.h:303:23
1258  : note:  no known conversion for argument 1 from 'std::_Fwd_list_const_iterator
1259  <int>' to 'std::ptrdiff_t' {aka 'long int'}
1260    303 |    operator+(ptrdiff_t __n, c
1261  onst _Bit_iterator& __x)
1262        |              ~~~~~~~~~~^~~
1263  /home/frodo/public/ug
1264  ls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_bvector.h:393:3: not
1265  e: candidate: 'std::_Bit_const_iterator std::operator+(std::ptrdiff_t, const std
1266  ::_Bit_const_iterator&)'
1267    393 |    operator+(ptrdiff_t __n, const _Bit_const_ite
1268  rator& __x)
1269        |    ^~~~~~~~
1270  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9
1271  .3.0/include/c++/9.3.0/bits/stl_bvector.h:393:23: note:  no known conversion fo
1272  r argument 1 from 'std::_Fwd_list_const_iterator<int>' to 'std::ptrdiff_t' {aka
1273  'long int'}
1274    393 |    operator+(ptrdiff_t __n, const _Bit_const_iterator& __x)
1275        |              ~~~~~~~~~~^~~
1276
1277  In file included from /home/judeonyia/Documents
1278  /ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_
1279  sane/source/app/test_sv_set.cpp:6:
1280  /home/judeonyia/Documents/ECE596C_Assignments
1281  /ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/
1282  ra/sv_set.hpp: In instantiation of 'ra::container::sv_set<Key, Compare>& ra::con
1283  tainer::sv_set<Key, Compare>::operator=(const ra::container::sv_set<Key, Compare
1284  >&) [with Key = double; Compare = std::less<double>]':
1285  /home/judeonyia/Documents
1286  /ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_
1287  sane/source/app/test_sv_set.cpp:38:5:  required from 'void test() [with T = dou
1288  ble; C = std::less<double>]'
1289  /home/judeonyia/Documents/ECE596C_Assignments/ECE59
1290  6C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_se
1291  t.cpp:74:34:  required from here
1292  /home/judeonyia/Documents/ECE596C_Assignments/
1293  ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/r
1294  a/sv_set.hpp:129:41: error: 'grow' was not declared in this scope
1295    129 |        i
1296  f(other.size() > capacity()) {grow(other.size());}
1297        |
1298                ~~~~^~~~~~~~~~~~~~~
1299  /home/judeonyia/Documents/ECE596C_Assignments/
1300  ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/r
1301  a/sv_set.hpp: In instantiation of 'ra::container::sv_set<Key, Compare>::sv_set(r
1302  a::container::sv_set<Key, Compare>::ordered_and_unique_range, InputIterator, std
```

```
1303  ::size_t) [with InputIterator = std::_Fwd_list_const_iterator<double>; Key = dou
1304  ble; Compare = std::less<double>; std::size_t = long unsigned int]':
1305  /home/judeo
1306  nyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktm
1307  p/package-set_sane/source/app/test_sv_set.cpp:64:16:  required from 'void test(
1308  ) [with T = double; C = std::less<double>]'
1309  /home/judeonyia/Documents/ECE596C_As
1310  signments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source
1311  /app/test_sv_set.cpp:74:34:  required from here
1312  /home/judeonyia/Documents/ECE59
1313  6C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_
1314  set.hpp:68:20: error: no match for 'operator+' (operand type
1315  s are 'std::_Fwd_list_const_iterator<double>' and 'std::size_t' {aka 'long unsig
1316  ned int'})
1317     68 |        insert(*(first+i));
1318        |               ~~~~~~^~~
1319  In fi
1320  le included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c
1321  ++/9.3.0/bits/stl_algobase.h:67,
1322                  from /home/frodo/public/ugls_l
1323  ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/char_traits.h:39,
1324
1325                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.
1326  3.0/ios:40,
1327                  from /home/frodo/public/ugls_lab-4.0.70/packages/gc
1328  c-9.3.0/include/c++/9.3.0/ostream:38,
1329                  from /home/frodo/public/u
1330  gls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1331
1332    from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_contain
1333  ers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1334  /home/frodo/p
1335  ublic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_iterator.h:4
1336  23:5: note: candidate: 'template<class _Iterator> constexpr std::reverse_iterato
1337  r<_Iterator> std::operator+(typename std::reverse_iterator<_Iterator>::differenc
1338  e_type, const std::reverse_iterator<_Iterator>&)'
1339    423 |     operator+(typename
1340  reverse_iterator<_Iterator>::difference_type __n,
1341        |     ^~~~~~~~
1342  /home/fr
1343  odo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_iterato
1344  r.h:423:5: note:  template argument deduction/substitution failed:
1345  In file incl
1346  uded from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_cont
1347  ainers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
1348  /home/jude
1349  onyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/ckt
1350  mp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:  mismatched types
1351  'const std::reverse_iterator<_Iterator>' and 'std::size_t' {aka 'long unsigned
1352  int'}
1353     68 |        insert(*(first+i));
1354        |               ~~~~~~^~~
1355  In file in
1356  cluded from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.
1357  3.0/bits/stl_algobase.h:67,
1358                  from /home/frodo/public/ugls_lab-4.
1359  0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/char_traits.h:39,
1360
1361    from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/i
1362  os:40,
1363                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3
1364  .0/include/c++/9.3.0/ostream:38,
```

```
1365                  from /home/frodo/public/ugls_l
1366  ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1367                  fro
1368  m /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
1369  udeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1370  /home/frodo/public
1371  /ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_iterator.h:1219:5
1372  : note: candidate: 'template<class _Iterator> constexpr std::move_iterator<_Iter
1373  atorL> std::operator+(typename std::move_iterator<_IteratorL>::difference_type,
1374  const std::move_iterator<_IteratorL>&)'
1375    1219 |     operator+(typename move_iter
1376  ator<_Iterator>::difference_type __n,
1377        |     ^~~~~~~~
1378  /home/frodo/public/ug
1379  ls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_iterator.h:1219:5: n
1380  ote:  template argument deduction/substitution failed:
1381  In file included from /h
1382  ome/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeO
1383  nyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
1384  /home/judeonyia/Docume
1385  nts/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-s
1386  et_sane/source/include/ra/sv_set.hpp:68:20: note:  mismatched types 'const std:
1387  :move_iterator<_IteratorL>' and 'std::size_t' {aka 'long unsigned int'}
1388     68 |
1389        insert(*(first+i));
1390        |               ~~~~~~^~~
1391  In file included from /h
1392  ome/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
1393
1394                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inc
1395  lude/c++/9.3.0/bits/locale_classes.h:40,
1396                  from /home/frodo/publi
1397  c/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1398
1399                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c
1400  ++/9.3.0/ios:42,
1401                  from /home/frodo/public/ugls_lab-4.0.70/packag
1402  es/gcc-9.3.0/include/c++/9.3.0/ostream:38,
1403                  from /home/frodo/pub
1404  lic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1405
1406          from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_co
1407  ntainers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1408  /home/fr
1409  odo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_strin
1410  g.h:6020:5: note: candidate: 'template<class _CharT, class _Traits, class _Alloc
1411  > std::basic_string<_CharT, _Traits, _Allocator> std::operator+(const std::basic
1412  _string<_CharT, _Traits, _Allocator>&, const std::basic_string<_CharT, _Traits,
1413  _Allocator>&)'
1414    6020 |     operator+(const basic_string<_CharT, _Traits, _Alloc>
1415  & __lhs,
1416        |     ^~~~~~~~
1417  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.
1418  3.0/include/c++/9.3.0/bits/basic_string.h:6020:5: note:  template argument dedu
1419  ction/substitution failed:
1420  In file included from /home/judeonyia/Documents/ECE59
1421  6C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/s
1422  ource/app/test_sv_set.cpp:6:
1423  /home/judeonyia/Documents/ECE596C_Assignments/ECE59
1424  6C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_
1425  set.hpp:68:20: note:  'std::_Fwd_list_const_iterator<double>' is not derived fr
1426  om 'const std::basic_string<_CharT, _Traits, _Allocator>'
```

```
1427     68 |        insert(*(
1428  first+i));
1429        |               ~~~~~~^~~
1430  In file included from /home/frodo/publ
1431  ic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:56,
1432
1433    from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0
1434  /bits/locale_classes.h:40,
1435                  from /home/frodo/public/ugls_lab-4.0
1436  .70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1437                  fr
1438  om /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:4
1439  2,
1440                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/i
1441  nclude/c++/9.3.0/ostream:38,
1442                  from /home/frodo/public/ugls_lab-4
1443  .0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1444                  from /h
1445  ome/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeO
1446  nyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1447  /home/frodo/public/ugl
1448  s_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.tcc:1158:5:
1449  note: candidate: 'template<class _CharT, class _Traits, class _Alloc> std::basic
1450  _string<_CharT, _Traits, _Allocator> std::operator+(const _CharT*, const std::ba
1451  sic_string<_CharT, _Traits, _Allocator>&)'
1452    1158 |     operator+(const _CharT* _
1453  _lhs,
1454        |     ^~~~~~~~
1455  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0
1456  /include/c++/9.3.0/bits/basic_string.tcc:1158:5: note:  template argument deduc
1457  tion/substitution failed:
1458  In file included from /home/judeonyia/Documents/ECE596
1459  C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/so
1460  urce/app/test_sv_set.cpp:6:
1461  /home/judeonyia/Documents/ECE596C_Assignments/ECE596
1462  C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_s
1463  et.hpp:68:20: note:  mismatched types 'const _CharT*' and 'std::_Fwd_list_const
1464  _iterator<double>'
1465     68 |        insert(*(first+i));
1466        |               ~~~~~~^
1467  ~~
1468  In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/i
1469  nclude/c++/9.3.0/string:56,
1470                  from /home/frodo/public/ugls_lab-4.
1471  0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
1472
1473    from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.
1474  0/bits/ios_base.h:41,
1475                  from /home/frodo/public/ugls_lab-4.0.70/p
1476  ackages/gcc-9.3.0/include/c++/9.3.0/ios:42,
1477                  from /home/frodo/pu
1478  blic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
1479
1480    from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.
1481  3.0/iostream:39,
1482                  from /home/judeonyia/Documents/ECE596C_Assignm
1483  ents/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/
1484  test_sv_set.cpp:1:
1485  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include
1486  /c++/9.3.0/bits/basic_string.tcc:1174:5: note: candidate: 'template<class _CharT
1487  , class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> st
1488  d::operator+(_CharT, const std::basic_string<_CharT, _Traits, _Allocator>&)'
```

```
1489   11
1490   74 |     operator+(_CharT __lhs, const basic_string<_CharT, _Traits, _Alloc>& __
1491   rhs)
1492      |      ^~~~~~~~
1493   /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
1494   include/c++/9.3.0/bits/basic_string.tcc:1174:5: note:   template argument deduct
1495   ion/substitution failed:
1496   In file included from /home/judeonyia/Documents/ECE596C
1497   _Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/sou
1498   rce/app/test_sv_set.cpp:6:
1499   /home/judeonyia/Documents/ECE596C_Assignments/ECE596C
1500   _Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_se
1501   t.hpp:68:20: note:   mismatched types 'const std::basic_string<_CharT, _Traits,
1502   _Allocator>' and 'std::size_t' {aka 'long unsigned int'}
1503     68 |       insert(*(f
1504   irst+i));
1505      |                  ~~~~~~^~~
1506   In file included from /home/publi
1507   c/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
1508
1509       from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/
1510   bits/locale_classes.h:40,
1511       from /home/frodo/public/ugls_lab-4.0.
1512   70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1513           fro
1514   m /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42
1515   ,
1516           from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/in
1517   clude/c++/9.3.0/ostream:38,
1518           from /home/frodo/public/ugls_lab-4.
1519   0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1520           from /ho
1521   me/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOn
1522   yia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1523   /home/frodo/public/ugls
1524   _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6057:5: not
1525   e: candidate: 'template<class _CharT, class _Traits, class _Alloc> std::basic_st
1526   ring<_CharT, _Traits, _Allocator> std::operator+(const std::basic_string<_CharT,
1527   _Traits, _Allocator>&, const _CharT*)'
1528    6057 |     operator+(const basic_string
1529   <_CharT, _Traits, _Alloc>& __lhs,
1530      |      ^~~~~~~~
1531   /home/frodo/public/ugls_l
1532   ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6057:5: note:
1533     template argument deduction/substitution failed:
1534   In file included from /home/
1535   judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia
1536   /cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
1537   /home/judeonyia/Documents/
1538   ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_s
1539   ane/source/include/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterator<d
1540   ouble>' is not derived from 'const std::basic_string<_CharT, _Traits, _Allocator
1541   >'
1542     68 |       insert(*(first+i));
1543      |                  ~~~~~~^~~
1544   In file inclu
1545   ded from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0
1546   /string:55,
1547           from /home/frodo/public/ugls_lab-4.0.70/packages/gc
1548   c-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
1549                   from /home/
1550   frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.
```

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1551   h:41,
1552           from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.
1553   0/include/c++/9.3.0/ios:42,
1554           from /home/frodo/public/ugls_lab-4.
1555   0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
1556           from /hom
1557   e/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1558
1559           from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Ass
1560   gn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:
1561   1:
1562   /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/
1563   basic_string.h:6073:5: note: candidate: 'template<class _CharT, class _Traits, c
1564   lass _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(const
1565   std::basic_string<_CharT, _Traits, _Allocator>&, _CharT)'
1566    6073 |     operator+
1567   (const basic_string<_CharT, _Traits, _Alloc>& __lhs, _CharT __rhs)
1568      |      ^
1569   ~~~~~~~
1570   /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/
1571   bits/basic_string.h:6073:5: note:   template argument deduction/substitution fai
1572   led:
1573   In file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C
1574   _Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.
1575   cpp:6:
1576   /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_contain
1577   ers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:
1578   'std::_Fwd_list_const_iterator<double>' is not derived from 'const std::basic_s
1579   tring<_CharT, _Traits, _Allocator>'
1580     68 |       insert(*(first+i));
1581      |
1582           ~~~~~~^~~
1583   In file included from /home/frodo/public/ugls_lab-4.0.70/pac
1584   kages/gcc-9.3.0/include/c++/9.3.0/string:55,
1585           from /home/frodo/p
1586   ublic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h
1587   :40,
1588           from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0
1589   /include/c++/9.3.0/bits/ios_base.h:41,
1590           from /home/frodo/public/
1591   ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
1592           fr
1593   om /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostre
1594   am:38,
1595           from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3
1596   .0/include/c++/9.3.0/iostream:39,
1597           from /home/judeonyia/Document
1598   s/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set
1599   _sane/source/app/test_sv_set.cpp:1:
1600   /home/frodo/public/ugls_lab-4.0.70/packages/
1601   gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6085:5: note: candidate: 'templa
1602   te<class _CharT, class _Traits, class _Alloc> std::basic_string<_CharT, _Traits,
1603   _Allocator> std::operator+(std::basic_string<_CharT, _Traits, _Allocator>&&, co
1604   nst std::basic_string<_CharT, _Traits, _Allocator>&)'
1605    6085 |     operator+(basi
1606   c_string<_CharT, _Traits, _Alloc>&& __lhs,
1607      |      ^~~~~~~~
1608   /home/frodo/publ
1609   ic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6085
1610   :5: note:   template argument deduction/substitution failed:
1611   In file included fr
1612   om /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-
```

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1613   JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
1614   /home/judeonyia/D
1615   ocuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/pack
1616   age-set_sane/source/include/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_i
1617   terator<double>' is not derived from 'std::basic_string<_CharT, _Traits, _Alloca
1618   tor>'
1619     68 |       insert(*(first+i));
1620      |                  ~~~~~~^~~
1621   In file in
1622   cluded from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.
1623   3.0/string:55,
1624           from /home/frodo/public/ugls_lab-4.0.70/packages
1625   /gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
1626           from /ho
1627   me/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_ba
1628   se.h:41,
1629           from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9
1630   .3.0/include/c++/9.3.0/ios:42,
1631           from /home/frodo/public/ugls_lab
1632   -4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
1633           from /
1634   home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:
1635   39,
1636           from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_
1637   Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.c
1638   pp:1:
1639   /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bi
1640   ts/basic_string.h:6091:5: note: candidate: 'template<class _CharT, class _Traits
1641   , class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(co
1642   nst std::basic_string<_CharT, _Traits, _Allocator>&, std::basic_string<_CharT, _
1643   Traits, _Allocator>&&)'
1644    6091 |     operator+(const basic_string<_CharT, _Traits
1645   , _Alloc>& __lhs,
1646      |      ^~~~~~~~
1647   /home/frodo/public/ugls_lab-4.0.70/packag
1648   es/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6091:5: note:   template argu
1649   ment deduction/substitution failed:
1650   In file included from /home/judeonyia/Docume
1651   nts/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-s
1652   et_sane/source/app/test_sv_set.cpp:6:
1653   /home/judeonyia/Documents/ECE596C_Assignme
1654   nts/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/inclu
1655   de/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterator<double>' is not d
1656   erived from 'const std::basic_string<_CharT, _Traits, _Allocator>'
1657     68 |
1658   insert(*(first+i));
1659      |                  ~~~~~~^~~
1660   In file included from /home/f
1661   rodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
1662
1663           from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/
1664   c++/9.3.0/bits/locale_classes.h:40,
1665           from /home/frodo/public/ugl
1666   s_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1667
1668       from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.
1669   3.0/ios:42,
1670           from /home/frodo/public/ugls_lab-4.0.70/packages/gc
1671   c-9.3.0/include/c++/9.3.0/ostream:38,
1672           from /home/frodo/public/u
1673   gls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1674
```

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1675           from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_contain
1676   ers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1677   /home/frodo/p
1678   ublic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6
1679   097:5: note: candidate: 'template<class _CharT, class _Traits, class _Alloc> std
1680   ::basic_string<_CharT, _Traits, _Allocator> std::operator+(std::basic_string<_Ch
1681   arT, _Traits, _Allocator>&&, std::basic_string<_CharT, _Traits, _Allocator>&&)'
1682
1683    6097 |       operator+(basic_string<_CharT, _Traits, _Alloc>&& __lhs,
1684      |
1685   ^~~~~~~~
1686   /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.
1687   0/bits/basic_string.h:6097:5: note:   template argument deduction/substitution f
1688   ailed:
1689   In file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE59
1690   6C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_se
1691   t.cpp:6:
1692   /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_conta
1693   iners-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:
1694   'std::_Fwd_list_const_iterator<double>' is not derived from 'std::basic_strin
1695   g<_CharT, _Traits, _Allocator>'
1696     68 |       insert(*(first+i));
1697      |
1698           ~~~~~~^~~
1699   In file included from /home/frodo/public/ugls_lab-4.0.70/package
1700   s/gcc-9.3.0/include/c++/9.3.0/string:55,
1701           from /home/frodo/public
1702   c/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
1703
1704           from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inc
1705   lude/c++/9.3.0/bits/ios_base.h:41,
1706           from /home/frodo/public/ugls
1707   _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
1708           from /
1709   home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:3
1710   8,
1711           from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/i
1712   nclude/c++/9.3.0/iostream:39,
1713           from /home/judeonyia/Documents/EC
1714   E596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_san
1715   e/source/app/test_sv_set.cpp:1:
1716   /home/frodo/public/ugls_lab-4.0.70/packages/gcc-
1717   9.3.0/include/c++/9.3.0/bits/basic_string.h:6109:5: note: candidate: 'template<c
1718   lass _CharT, class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Al
1719   locator> std::operator+(const _CharT*, std::basic_string<_CharT, _Traits, _Alloc
1720   ator>&&)'
1721    6109 |       operator+(const _CharT* __lhs,
1722      |                  ^~~~~~~~
1723   /home/
1724   frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_str
1725   ing.h:6109:5: note:   template argument deduction/substitution failed:
1726   In file i
1727   ncluded from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_c
1728   ontainers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
1729   /home/j
1730   udeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/
1731   cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:   mismatched ty
1732   pes 'const _CharT*' and 'std::_Fwd_list_const_iterator<double>'
1733     68 |       ins
1734   ert(*(first+i));
1735      |                  ~~~~~~^~~
1736   In file included from /home/frod
```

```
1737  o/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
1738
1739          from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
1740  /9.3.0/bits/locale_classes.h:40,
1741          from /home/frodo/public/ugls_l
1742  ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1743
1744      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0
1745  /ios:42,
1746          from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9
1747  .3.0/include/c++/9.3.0/ostream:38,
1748          from /home/frodo/public/ugls
1749  _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1750          f
1751  rom /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers
1752  -JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
1753  /home/frodo/publ
1754  ic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6115
1755  :5: note: candidate: 'template<class _CharT, class _Traits, class _Alloc> std::b
1756  asic_string<_CharT, _Traits, _Allocator> std::operator+(_CharT, std::basic_strin
1757  g<_CharT, _Traits, _Allocator>&&)'
1758   6115 |     operator+(_CharT __lhs,
1759
1760      ^~~~~~~
1761  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.
1762  3.0/bits/basic_string.h:6115:5: note:   template argument deduction/substitution
1763   failed:
1764  In file included from /home/judeonyia/Documents/ECE
1765  596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_
1766  set.cpp:6:
1767  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_con
1768  tainers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: not
1769  e:  mismatched types 'std::basic_string<_CharT, _Traits, _Allocator>' and 'std:
1770  :size_t' {aka 'long unsigned int'}
1771     68 |     insert(*(first+i));
1772
1773          ~~~~~~^~~
1774  In file included from /home/frodo/public/ugls_lab-4.0.70/pack
1775  ages/gcc-9.3.0/include/c++/9.3.0/string:55,
1776          from /home/frodo/pu
1777  blic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:
1778  40,
1779          from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
1780  include/c++/9.3.0/bits/ios_base.h:41,
1781          from /home/frodo/public/u
1782  gls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
1783          fro
1784  m /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostrea
1785  m:38,
1786          from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.
1787  0/include/c++/9.3.0/iostream:39,
1788          from /home/judeonyia/Documents
1789  /ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_
1790  sane/source/app/test_sv_set.cpp:1:
1791  /home/frodo/public/ugls_lab-4.0.70/packages/g
1792  cc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6121:5: note: candidate: 'templat
1793  e<class _CharT, class _Traits, class _Alloc> std::basic_string<_CharT, _Traits,
1794  _Allocator> std::operator+(std::basic_string<_CharT, _Traits, _Allocator>&&, con
1795  st _CharT*)'
1796   6121 |     operator+(basic_string<_CharT, _Traits, _Alloc>&& __lhs
1797  ,
1798      |         ^~~~~~~~
```

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1799  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inc
1800  lude/c++/9.3.0/bits/basic_string.h:6121:5: note:   template argument deduction/s
1801  ubstitution failed:
1802  In file included from /home/judeonyia/Documents/ECE596C_Assi
1803  gnments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/a
1804  pp/test_sv_set.cpp:6:
1805  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assg
1806  n_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp
1807  :68:20: note:  'std::_Fwd_list_const_iterator<double>' is not derived from 'std
1808  ::basic_string<_CharT, _Traits, _Allocator>'
1809     68 |     insert(*(first+i));
1810
1811      |          ~~~~~~^~~
1812  In file included from /home/frodo/public/ugls_lab-4
1813  .0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
1814          from /home/hom
1815  e/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_
1816  classes.h:40,
1817          from /home/frodo/public/ugls_lab-4.0.70/packages/
1818  gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
1819          from /home/frod
1820  o/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
1821
1822          from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.
1823  3.0/ostream:38,
1824          from /home/frodo/public/ugls_lab-4.0.70/package
1825  s/gcc-9.3.0/include/c++/9.3.0/iostream:39,
1826          from /home/judeonyia
1827  /Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/pa
1828  ckage-set_sane/source/app/test_sv_set.cpp:1:
1829  /home/frodo/public/ugls_lab-4.0.70/
1830  packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6127:5: note: candidate
1831  : 'template<class _CharT, class _Traits, class _Alloc> std::basic_string<_CharT,
1832  _Traits, _Allocator> std::operator+(std::basic_string<_CharT, _Traits, _Allocat
1833  or>&&, _CharT)'
1834   6127 |     operator+(basic_string<_CharT, _Traits, _Alloc>&& __
1835  lhs,
1836      |         ^~~~~~~~
1837  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
1838  include/c++/9.3.0/bits/basic_string.h:6127:5: note:   template argument deductio
1839  n/substitution failed:
1840  In file included from /home/judeonyia/Documents/ECE596C_A
1841  ssignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/sourc
1842  e/app/test_sv_set.cpp:6:
1843  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_A
1844  ssgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.
1845  hpp:68:20: note:  'std::_Fwd_list_const_iterator<double>' is not derived from '
1846  std::basic_string<_CharT, _Traits, _Allocator>'
1847     68 |     insert(*(first+i));
1848
1849      |          ~~~~~~^~~
1850  In file included from /home/frodo/public/ugls_la
1851  b-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/vector:68,
1852          from /
1853  home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/functiona
1854  l:62,
1855          from /home/judeonyia/Documents/ECE596C_Assignments/ECE596
1856  C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set
1857  .cpp:3:
1858  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/
1859  bits/stl_bvector.h:303:3: note: candidate: 'std::_Bit_iterator std::operator+(st
1860  d::ptrdiff_t, const std::_Bit_iterator&)'
```

```
1861    303 |     operator+(ptrdiff_t __n, con
1862  st _Bit_iterator& __x)
1863      |         ^~~~~~~
1864  /home/frodo/public/ugls_lab-4.0.70/pac
1865  kages/gcc-9.3.0/include/c++/9.3.0/bits/stl_bvector.h:303:23: note:  no known co
1866  nversion for argument 1 from 'std::_Fwd_list_const_iterator<double>' to 'std::pt
1867  rdiff_t' {aka 'long int'}
1868    303 |     operator+(ptrdiff_t __n, const _Bit_iterator
1869  & __x)
1870      |                   ~~~~~~~~~~^~~
1871  /home/frodo/public/ugls_lab-4.0.70/pack
1872  ages/gcc-9.3.0/include/c++/9.3.0/bits/stl_bvector.h:393:3: note: candidate: 'std
1873  ::_Bit_const_iterator std::operator+(std::ptrdiff_t, const std::_Bit_const_itera
1874  tor&)'
1875    393 |     operator+(ptrdiff_t __n, const _Bit_const_iterator& __x)
1876
1877      |     ^~~~~~~
1878  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9
1879  .3.0/bits/stl_bvector.h:393:23: note:  no known conversion for argument 1 from
1880  'std::_Fwd_list_const_iterator<double>' to 'std::ptrdiff_t' {aka 'long int'}
1881    3
1882  93 |     operator+(ptrdiff_t __n, const _Bit_const_iterator& __x)
1883
1884      |                   ~~~~~~~~~~^~~
1885  In file included from /home/judeonyia/Documents/ECE596C_Assign
1886  ments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app
1887  /test_sv_set.cpp:6:
1888  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_
1889  4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:
1890  In instantiation of 'ra::container::sv_set<Key, Compare>& ra::container::sv_set<
1891  Key, Compare>::operator=(const ra::container::sv_set<Key, Compare>&) [with Key =
1892  std::vector<int>; Compare = std::greater<std::vector<int> >]':
1893  /home/judeonyia/
1894  Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/pac
1895  kage-set_sane/source/app/test_sv_set.cpp:38:5:   required from 'void test() [wit
1896  h T = std::vector<int>; C = std::greater<std::vector<int> >]'
1897  /home/judeonyia/Do
1898  cuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/packa
1899  ge-set_sane/source/app/test_sv_set.cpp:75:57:   required from here
1900  /home/judeony
1901  ia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/
1902  package-set_sane/source/include/ra/sv_set.hpp:129:41: error: 'grow' was not decl
1903  ared in this scope
1904    129 |     if(other.size() > capacity()) {grow(other.size()
1905  );}
1906      |                                       ~~~~~^~~~~~~~~~~~~~
1907  /home/judeony
1908  ia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/
1909  package-set_sane/source/include/ra/sv_set.hpp: In instantiation of 'ra::containe
1910  r::sv_set<Key, Compare>::sv_set(ra::container::sv_set<Key, Compare>::ordered_and
1911  _unique_range, InputIterator, std::size_t) [with InputIterator = std::_Fwd_list_
1912  const_iterator<std::vector<int> >; Key = std::vector<int>; Compare = std::greate
1913  r<std::vector<int> >; std::size_t = long unsigned int]':
1914  /home/judeonyia/Documen
1915  ts/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-se
1916  t_sane/source/app/test_sv_set.cpp:64:16:   required from 'void test() [with T =
1917  std::vector<int>; C = std::greater<std::vector<int> >]'
1918  /home/judeonyia/Document
1919  s/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set
1920  _sane/source/app/test_sv_set.cpp:75:57:   required from here
1921  /home/judeonyia/Doc
1922  uments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/packag
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1923  e-set_sane/source/include/ra/sv_set.hpp:68:20: error: no match for 'operator+' (
1924  operand types are 'std::_Fwd_list_const_iterator<std::vector<int> >' and 'std::s
1925  ize_t' {aka 'long unsigned int'})
1926     68 |     insert(*(first+i));
1927
1928      |          ~~~~~~^~~
1929  In file included from /home/frodo/public/ugls_lab-4.0.70/packa
1930  ges/gcc-9.3.0/include/c++/9.3.0/bits/stl_algobase.h:67,
1931          from /h
1932  ome/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/char_
1933  traits.h:39,
1934          from /home/frodo/public/ugls_lab-4.0.70/packages/g
1935  cc-9.3.0/include/c++/9.3.0/ios:40,
1936          from /home/frodo/public/ugls
1937  _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
1938          fr
1939  om /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostr
1940  eam:39,
1941          from /home/judeonyia/Documents/ECE596C_Assignments/ECE5
1942  96C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_s
1943  et.cpp:1:
1944  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.
1945  0/bits/stl_iterator.h:423:5: note: candidate: 'template<class _Iterator> constex
1946  pr std::reverse_iterator<_Iterator> std::operator+(typename std::reverse_iterato
1947  r<_Iterator>::difference_type, const std::reverse_iterator<_Iterator>&)'
1948    423 |
1949      operator+(typename reverse_iterator<_Iterator>::difference_type __n,
1950
1951      |         ^~~~~~~
1952  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
1953  /9.3.0/bits/stl_iterator.h:423:5: note:   template argument deduction/substituti
1954  on failed:
1955  In file included from /home/judeonyia/Documents/ECE596C_Assignments/E
1956  CE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_s
1957  v_set.cpp:6:
1958  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_c
1959  ontainers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: n
1960  ote:  mismatched types 'const std::reverse_iterator<_Iterator>' and 'std::size_
1961  t' {aka 'long unsigned int'}
1962     68 |     insert(*(first+i));
1963
1964      |          ~~~~~~^~~
1965  In file included from /home/frodo/public/ugls_lab-4.0.70/packages/g
1966  cc-9.3.0/include/c++/9.3.0/bits/stl_algobase.h:67,
1967          from /home/f
1968  rodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/char_trait
1969  s.h:39,
1970          from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.
1971  3.0/include/c++/9.3.0/ios:40,
1972          from /home/frodo/public/ugls_lab-
1973  4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
1974          from /h
1975  ome/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:3
1976  9,
1977          from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_A
1978  ssgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cp
1979  p:1:
1980  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bit
1981  s/stl_iterator.h:1219:5: note: candidate: 'template<class _Iterator> constexpr s
1982  td::move_iterator<_IteratorL> std::operator+(typename std::move_iterator<_Iterat
1983  orL>::difference_type, const std::move_iterator<_IteratorL>&)'
1984   1219 |     opera
```

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1985 tor+(typename move_iterator<_Iterator>::difference_type __n,
1986        ^~~~~~~
1987 ~
1988 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/s
1989 tl_iterator.h:1219:5: note:   template argument deduction/substitution failed:
1990 I
1991 n file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn
1992 _4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
1993
1994 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
1995 deOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:   misma
1996 tched types 'const std::move_iterator<_IteratorL>' and 'std::size_t' {aka 'long
1997 unsigned int'}
1998    68 |      insert(*(first+i));
1999       |             ~~~~~~~^~~
2000 I
2001 n file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inclu
2002 de/c++/9.3.0/string:55,
2003              from /home/frodo/public/ugls_lab-4.0.70
2004 /packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
2005
2006  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bi
2007 ts/ios_base.h:41,
2008              from /home/frodo/public/ugls_lab-4.0.70/packa
2009 ges/gcc-9.3.0/include/c++/9.3.0/ios:42,
2010              from /home/frodo/public
2011 /ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
2012
2013    from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/
2014 iostream:39,
2015              from /home/judeonyia/Documents/ECE596C_Assignments
2016 /ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test
2017 _sv_set.cpp:1:
2018 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
2019 /9.3.0/bits/basic_string.h:6020:5: note: candidate: 'template<class _CharT, clas
2020 s _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::ope
2021 rator+(const std::basic_string<_CharT, _Traits, _Allocator>&, const std::basic_s
2022 tring<_CharT, _Traits, _Allocator>&)'
2023  6020 |    operator+(const basic_string<_
2024 CharT, _Traits, _Alloc>& __lhs,
2025       |    ^~~~~~~~
2026 /home/frodo/public/ugls_lab
2027 -4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6020:5: note:
2028  template argument deduction/substitution failed:
2029 In file included from /home/ju
2030 deonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/c
2031 ktmp/package-set_sane/source/app/test_sv_set.cpp:6:
2032 /home/judeonyia/Documents/EC
2033 E596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_san
2034 e/source/include/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterator<std
2035 ::vector<int> >' is not derived from 'const std::basic_string<_CharT, _Traits, _
2036 Allocator>'
2037    68 |      insert(*(first+i));
2038       |             ~~~~~~~^~~
2039 In f
2040 ile included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/
2041 c++/9.3.0/string:56,
2042              from /home/frodo/public/ugls_lab-4.0.70/pa
2043 ckages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
2044              fr
2045 om /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/
2046 ios_base.h:41,
```

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2047              from /home/frodo/public/ugls_lab-4.0.70/packages
2048 /gcc-9.3.0/include/c++/9.3.0/ios:42,
2049              from /home/frodo/public/ug
2050 ls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
2051
2052 from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios
2053 tream:39,
2054              from /home/judeonyia/Documents/ECE596C_Assignments/EC
2055 E596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv
2056 _set.cpp:1:
2057 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.
2058 3.0/bits/basic_string.tcc:1158:5: note: candidate: 'template<class _CharT, class
2059 _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::oper
2060 ator+(const _CharT*, const std::basic_string<_CharT, _Traits, _Allocator>&)'
2061   11
2062 58 |      operator+(const _CharT* __lhs,
2063       |            ^~~~~~~~
2064 /home/frodo/public/
2065 ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.tcc:1158:
2066 5: note:   template argument deduction/substitution failed:
2067 In file included fro
2068 m /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
2069 udeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
2070 /home/judeonyia/Do
2071 cuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/packa
2072 ge-set_sane/source/include/ra/sv_set.hpp:68:20: note:   mismatched types 'const
2073 _CharT*' and 'std::_Fwd_list_const_iterator<std::vector<int> >'
2074    68 |      ins
2075 ert(*(first+i));
2076       |             ~~~~~~~^~~
2077 In file included from /home/frod
2078 o/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:56,
2079
2080       from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
2081 /9.3.0/bits/locale_classes.h:40,
2082              from /home/frodo/public/ugls_l
2083 ab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
2084
2085     from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0
2086 /ios:42,
2087              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9
2088 .3.0/include/c++/9.3.0/ostream:38,
2089              from /home/frodo/public/ugls
2090 _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
2091              f
2092 rom /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers
2093 -JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
2094 /home/frodo/publ
2095 ic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.tcc:11
2096 74:5: note: candidate: 'template<class _CharT, class _Traits, class _Alloc> std:
2097 :basic_string<_CharT, _Traits, _Allocator> std::operator+(_CharT, const std::bas
2098 ic_string<_CharT, _Traits, _Allocator>&)'
2099  1174 |    operator+(_CharT __lhs, co
2100 nst basic_string<_CharT, _Traits, _Alloc>& __rhs)
2101       |    ^~~~~~~~
2102 /home/fro
2103 do/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string
2104 .tcc:1174:5: note:   template argument deduction/substitution failed:
2105 In file in
2106 cluded from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_co
2107 ntainers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
2108 /home/ju
```

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2109 deonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/c
2110 ktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:   mismatched typ
2111 es 'const std::basic_string<_CharT, _Traits, _Allocator>' and 'std::size_t' {aka
2112 'long unsigned int'}
2113    68 |      insert(*(first+i));
2114       |             ~~~~
2115 ~~^~~
2116 In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.
2117 0/include/c++/9.3.0/string:55,
2118              from /home/frodo/public/ugls_lab
2119 -4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
2120
2121        from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9
2122 .3.0/bits/ios_base.h:41,
2123              from /home/frodo/public/ugls_lab-4.0.7
2124 0/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
2125              from /home/frodo
2126 /public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
2127
2128          from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
2129 /9.3.0/iostream:39,
2130              from /home/judeonyia/Documents/ECE596C_Assi
2131 gnments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/a
2132 pp/test_sv_set.cpp:1:
2133 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/incl
2134 ude/c++/9.3.0/bits/basic_string.h:6057:5: note: candidate: 'template<class _Char
2135 T, class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> s
2136 td::operator+(const std::basic_string<_CharT, _Traits, _Allocator>&, const _Char
2137 T*)'
2138  6057 |    operator+(const basic_string<_CharT, _Traits, _Alloc>& __lhs,
2139
2140       |    ^~~~~~~~
2141 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/includ
2142 e/c++/9.3.0/bits/basic_string.h:6057:5: note:   template argument deduction/subs
2143 titution failed:
2144 In file included from /home/judeonyia/Documents/ECE596C_Assignm
2145 ents/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/
2146 test_sv_set.cpp:6:
2147 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4
2148 /cpp_containers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68
2149 :20: note:   'std::_Fwd_list_const_iterator<std::vector<int> >' is not derived f
2150 rom 'const std::basic_string<_CharT, _Traits, _Allocator>'
2151    68 |      insert(*
2152 (first+i));
2153       |             ~~~~~~~^~~
2154 In file included from /home/frodo/pub
2155 lic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
2156
2157    from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.
2158 0/bits/locale_classes.h:40,
2159              from /home/frodo/public/ugls_lab-4.
2160 0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
2161              f
2162 rom /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:
2163 42,
2164              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/
2165 include/c++/9.3.0/ostream:38,
2166              from /home/frodo/public/ugls_lab-
2167 4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
2168              from /
2169 home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jude
2170 Onyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:1:
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2171 /home/frodo/public/ug
2172 ls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6073:5: n
2173 ote: candidate: 'template<class _CharT, class _Traits, class _Alloc> std::basic_
2174 string<_CharT, _Traits, _Allocator> std::operator+(const std::basic_string<_Char
2175 T, _Traits, _Allocator>&, _CharT)'
2176  6073 |    operator+(const basic_string<_Cha
2177 rT, _Traits, _Alloc>& __lhs, _CharT __rhs)
2178       |    ^~~~~~~~
2179 /home/frodo/publ
2180 ic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6073
2181 :5: note:   template argument deduction/substitution failed:
2182 In file included fr
2183 om /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-
2184 JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
2185 /home/judeonyia/D
2186 ocuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/pack
2187 age-set_sane/source/include/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_i
2188 terator<std::vector<int> >' is not derived from 'const std::basic_string<_CharT,
2189 _Traits, _Allocator>'
2190    68 |      insert(*(first+i));
2191       |             ~~~
2192 ~~~^~~
2193 In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3
2194 .0/include/c++/9.3.0/string:55,
2195              from /home/frodo/public/ugls_la
2196 b-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
2197
2198      from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/
2199 9.3.0/bits/ios_base.h:41,
2200              from /home/frodo/public/ugls_lab-4.0.
2201 70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
2202              from /home/frod
2203 o/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
2204
2205        from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c+
2206 +/9.3.0/iostream:39,
2207              from /home/judeonyia/Documents/ECE596C_Ass
2208 ignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/
2209 app/test_sv_set.cpp:1:
2210 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inc
2211 lude/c++/9.3.0/bits/basic_string.h:6085:5: note: candidate: 'template<class _Cha
2212 rT, class _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator>
2213 std::operator+(std::basic_string<_CharT, _Traits, _Allocator>&&, const std::basi
2214 c_string<_CharT, _Traits, _Allocator>&)'
2215  6085 |    operator+(basic_string<_Cha
2216 rT, _Traits, _Alloc>&& __lhs,
2217       |    ^~~~~~~~
2218 /home/frodo/public/ugls_lab-4
2219 .0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6085:5: note:   t
2220 emplate argument deduction/substitution failed:
2221 In file included from /home/jude
2222 onyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/ckt
2223 mp/package-set_sane/source/app/test_sv_set.cpp:6:
2224 /home/judeonyia/Documents/ECE5
2225 96C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/
2226 source/include/ra/sv_set.hpp:68:20: note:   'std::_Fwd_list_const_iterator<std::
2227 vector<int> >' is not derived from 'std::basic_string<_CharT, _Traits, _Allocato
2228 r>'
2229    68 |      insert(*(first+i));
2230       |             ~~~~~~~^~~
2231 In file incl
2232 uded from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.
```

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2233  0/string:55,
2234                  from /home/frodo/public/ugls_lab-4.0.70/packages/g
2235  cc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
2236                  from /home
2237  /frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base
2238  .h:41,
2239                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3
2240  .0/include/c++/9.3.0/ios:42,
2241                  from /home/frodo/public/ugls_lab-4
2242  .0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
2243                  from /ho
2244  me/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39
2245  ,
2246                  from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_As
2247  sgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/test_sv_set.cpp
2248  :1:
2249  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits
2250  /basic_string.h:6091:5: note: candidate: 'template<class _CharT, class _Traits,
2251  class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(cons
2252  t std::basic_string<_CharT, _Traits, _Allocator>&, std::basic_string<_CharT, _Tr
2253  aits, _Allocator>&&)'
2254   6091 |    operator+(const basic_string<_CharT, _Traits,
2255  _Alloc>& __lhs,
2256        |    ^~~~~~~~
2257  /home/frodo/public/ugls_lab-4.0.70/packages
2258  /gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6091:5: note:   template argume
2259  nt deduction/substitution failed:
2260  In file included from /home/judeonyia/Document
2261  s/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set
2262  _sane/source/app/test_sv_set.cpp:6:
2263  /home/judeonyia/Documents/ECE596C_Assignment
2264  s/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/include
2265  /ra/sv_set.hpp:68:20: note:  'std::_Fwd_list_const_iterator<std::vector<int> >'
2266   is not derived from 'const std::basic_string<_CharT, _Traits, _Allocator>'
2267        6
2268  8 |       insert(*(first+i));
2269        |                ~~~~~~^~~
2270  In file included fro
2271  m /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string
2272  :55,
2273                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0
2274  /include/c++/9.3.0/bits/locale_classes.h:40,
2275                  from /home/frodo/p
2276  ublic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
2277
2278                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inclu
2279  de/c++/9.3.0/ios:42,
2280                  from /home/frodo/public/ugls_lab-4.0.70/pa
2281  ckages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
2282                  from /home/frodo
2283  /public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
2284
2285                  from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cp
2286  p_containers-JudeOnyia/cktmp/package-set-sane/source/app/test_sv_set.cpp:1:
2287  /hom
2288  e/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_s
2289  tring.h:6097:5: note: candidate: 'template<class _CharT, class _Traits, class _A
2290  lloc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(std::basic_s
2291  tring<_CharT, _Traits, _Allocator>&&, std::basic_string<_CharT, _Traits, _Alloca
2292  tor>&&)'
2293   6097 |     operator+(basic_string<_CharT, _Traits, _Alloc>&& __lhs,
2294
```

```
2295        |    ^~~~~~~~
2296  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include
2297  /c++/9.3.0/bits/basic_string.h:6097:5: note:   template argument deduction/subst
2298  itution failed:
2299  In file included from /home/judeonyia/Documents/ECE596C_Assignme
2300  nts/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/t
2301  est_sv_set.cpp:6:
2302  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/
2303  cpp_containers-JudeOnyia/cktmp/package-set-sane/source/include/ra/sv_set.hpp:68:
2304  20: note:  'std::_Fwd_list_const_iterator<std::vector<int> >' is not derived fr
2305  om 'std::basic_string<_CharT, _Traits, _Allocator>'
2306     68 |       insert(*(first+
2307  i));
2308        |                ~~~~~^~~
2309  In file included from /home/frodo/public/ugl
2310  s_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
2311                      fr
2312  om /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/
2313  locale_classes.h:40,
2314                  from /home/frodo/public/ugls_lab-4.0.70/pa
2315  ckages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
2316                  from /ho
2317  me/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ios:42,
2318
2319                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include
2320  /c++/9.3.0/ostream:38,
2321                  from /home/frodo/public/ugls_lab-4.0.70/
2322  packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
2323                  from /home/ju
2324  deonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/c
2325  ktmp/package-set_sane/source/app/test_sv_set.cpp:1:
2326  /home/frodo/public/ugls_lab-
2327  4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6109:5: note: ca
2328  ndidate: 'template<class _CharT, class _Traits, class _Alloc> std::basic_string<
2329  _CharT, _Traits, _Allocator> std::operator+(const _CharT*, std::basic_string<_Ch
2330  arT, _Traits, _Allocator>&&)'
2331   6109 |     operator+(const _CharT* __lhs,
2332
2333        |    ^~~~~~~~
2334  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/
2335  9.3.0/bits/basic_string.h:6109:5: note:   template argument deduction/substituti
2336  on failed:
2337  In file included from /home/judeonyia/Documents/ECE596C_Assignments/E
2338  CE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/test_s
2339  v_set.cpp:6:
2340  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_c
2341  ontainers-JudeOnyia/cktmp/package-set-sane/source/include/ra/sv_set.hpp:68:20: n
2342  ote:  mismatched types 'const _CharT*' and 'std::_Fwd_list_const_iterator<std::
2343  vector<int> >'
2344     68 |       insert(*(first+i));
2345        |                ~~~~~~^~~
2346  I
2347  n file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/inclu
2348  de/c++/9.3.0/string:55,
2349                  from /home/frodo/public/ugls_lab-4.0.70
2350  /packages/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
2351
2352   from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bi
2353  ts/ios_base.h:41,
2354                  from /home/frodo/public/ugls_lab-4.0.70/packa
2355  ges/gcc-9.3.0/include/c++/9.3.0/ios:42,
2356                  from /home/frodo/public
```

```
2357  /ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
2358
2359     from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/
2360  iostream:39,
2361                  from /home/judeonyia/Documents/ECE596C_Assignments
2362  /ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/app/test
2363  _sv_set.cpp:1:
2364  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
2365  /9.3.0/bits/basic_string.h:6115:5: note: candidate: 'template<class _CharT, clas
2366  s _Traits, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::ope
2367  rator+(_CharT, std::basic_string<_CharT, _Traits, _Allocator>&&)'
2368   6115 |     op
2369  erator+(_CharT __lhs,
2370        |    ^~~~~~~~
2371  /home/frodo/public/ugls_lab-4.0.70/pa
2372  ckages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6115:5: note:   template
2373  argument deduction/substitution failed:
2374  In file included from /home/judeonyia/Do
2375  cuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/packa
2376  ge-set_sane/source/app/test_sv_set.cpp:6:
2377  /home/judeonyia/Documents/ECE596C_Assi
2378  gnments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set-sane/source/i
2379  nclude/ra/sv_set.hpp:68:20: note:  mismatched types 'std::basic_string<_CharT,
2380  _Traits, _Allocator>' and 'std::size_t' {aka 'long unsigned int'}
2381     68 |       i
2382  nsert(*(first+i));
2383        |                ~~~~~~^~~
2384  In file included from /home/fr
2385  odo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/string:55,
2386
2387              from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c
2388  ++/9.3.0/bits/locale_classes.h:40,
2389                  from /home/frodo/public/ugls
2390  _lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_base.h:41,
2391
2392          from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3
2393  .0/ios:42,
2394                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc
2395  -9.3.0/include/c++/9.3.0/ostream:38,
2396                  from /home/frodo/public/ug
2397  ls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:39,
2398
2399   from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containe
2400  rs-JudeOnyia/cktmp/package-set-sane/source/app/test_sv_set.cpp:1:
2401  /home/frodo/pu
2402  blic/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:61
2403  21:5: note: candidate: 'template<class _CharT, class _Traits, class _Alloc> std:
2404  :basic_string<_CharT, _Traits, _Allocator> std::operator+(std::basic_string<_Cha
2405  rT, _Traits, _Allocator>&&, const _CharT*)'
2406   6121 |     operator+(basic_string<_
2407  CharT, _Traits, _Alloc>&& __lhs,
2408        |    ^~~~~~~~
2409  /home/frodo/public/ugls_la
2410  b-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:6121:5: note:
2411  template argument deduction/substitution failed:
2412  In file included from /home/j
2413  udeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/
2414  cktmp/package-set_sane/source/app/test_sv_set.cpp:6:
2415  /home/judeonyia/Documents/E
2416  CE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sa
2417  ne/source/include/ra/sv_set.hpp:68:20: note:  'std::_Fwd_list_const_iterator<st
2418  d::vector<int> >' is not derived from 'std::basic_string<_CharT, _Traits, _Alloc
```

```
2419  ator>'
2420     68 |       insert(*(first+i));
2421        |                ~~~~~~^~~
2422  In file i
2423  ncluded from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9
2424  .3.0/string:55,
2425                  from /home/frodo/public/ugls_lab-4.0.70/package
2426  s/gcc-9.3.0/include/c++/9.3.0/bits/locale_classes.h:40,
2427                  from /h
2428  ome/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/ios_b
2429  ase.h:41,
2430                  from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-
2431  9.3.0/include/c++/9.3.0/ios:42,
2432                  from /home/frodo/public/ugls_la
2433  b-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
2434                  from
2435  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream
2436  :39,
2437                  from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C
2438  _Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.
2439  cpp:1:
2440  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/b
2441  its/basic_string.h:6127:5: note: candidate: 'template<class _CharT, class _Trait
2442  s, class _Alloc> std::basic_string<_CharT, _Traits, _Allocator> std::operator+(s
2443  td::basic_string<_CharT, _Traits, _Allocator>&&, _CharT)'
2444   6127 |     operator+(
2445  basic_string<_CharT, _Traits, _Alloc>&& __lhs,
2446        |    ^~~~~~~~
2447  /home/frodo/
2448  public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/basic_string.h:
2449  6127:5: note:   template argument deduction/substitution failed:
2450  In file include
2451  d from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_contain
2452  ers-JudeOnyia/cktmp/package-set-sane/source/app/test_sv_set.cpp:6:
2453  /home/judeony
2454  ia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/
2455  package-set_sane/source/include/ra/sv_set.hpp:68:20: note:  'std::_Fwd_list_con
2456  st_iterator<std::vector<int> >' is not derived from 'std::basic_string<_CharT, _
2457  Traits, _Allocator>'
2458     68 |       insert(*(first+i));
2459        |                ~~~~~~
2460  ^~~
2461  In file included from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0
2462  /include/c++/9.3.0/vector:68,
2463                  from /home/frodo/public/ugls_lab-
2464  4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/functional:62,
2465                  from
2466   /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
2467  deOnyia/cktmp/package-set_sane/source/app/test_sv_set.cpp:3:
2468  /home/frodo/public/
2469  ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_bvector.h:303:3: n
2470  ote: candidate: 'std::_Bit_iterator std::operator+(std::ptrdiff_t, const std::_B
2471  it_iterator&)'
2472    303 |     operator+(ptrdiff_t __n, const _Bit_iterator& __x)
2473
2474        |     ^~~~~~~~
2475  /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++
2476  /9.3.0/bits/stl_bvector.h:303:23: note:   no known conversion for argument 1 fro
2477  m 'std::_Fwd_list_const_iterator<std::vector<int> >' to 'std::ptrdiff_t' {aka 'l
2478  ong int'}
2479    303 |     operator+(ptrdiff_t __n, const _Bit_iterator& __x)
2480
```

```
2481              ~~~~~~~~~~^~~
2482 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/i
2483 nclude/c++/9.3.0/bits/stl_bvector.h:393:3: note: candidate: 'std::_Bit_const_ite
2484 rator std::operator+(std::ptrdiff_t, const std::_Bit_const_iterator&)'
2485   393 |
2486  operator+(ptrdiff_t __n, const _Bit_const_iterator& __x)
2487       |   ^~~~~~~~
2488 /ho
2489 me/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/stl_bv
2490 ector.h:393:23: note:   no known conversion for argument 1 from 'std::_Fwd_list_
2491 const_iterator<std::vector<int> >' to 'std::ptrdiff_t' {aka 'long int'}
2492   393 |
2493  operator+(ptrdiff_t __n, const _Bit_const_iterator& __x)
2494       |                      ~
2495 ~~~~~~~~~^~~
2496 In file included from /home/frodo/public/ugls_lab-4.0.70/packages/g
2497 cc-9.3.0/include/c++/9.3.0/bits/stl_algobase.h:67,
2498                 from /home/f
2499 rodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bits/char_trait
2500 s.h:39,
2501                 from /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.
2502 3.0/include/c++/9.3.0/ios:40,
2503                 from /home/frodo/public/ugls_lab-
2504 4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/ostream:38,
2505                 from /h
2506 ome/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/iostream:3
2507 9,
2508                 from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_A
2509 ssgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.cp
2510 p:1:
2511 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0/bit
2512 s/stl_iterator.h:996:5: note: candidate: 'template<class _Iterator, class _Conta
2513 iner> __gnu_cxx::__normal_iterator<_Iterator, _Container> __gnu_cxx::operator+(t
2514 ypename __gnu_cxx::__normal_iterator<_Iterator, _Container>::difference_type, co
2515 nst __gnu_cxx::__normal_iterator<_Iterator, _Container>&)'
2516   996 |     operator+
2517 (typename __normal_iterator<_Iterator, _Container>::difference_type
2518       |
2519 ^~~~~~~~
2520 /home/frodo/public/ugls_lab-4.0.70/packages/gcc-9.3.0/include/c++/9.3.0
2521 /bits/stl_iterator.h:996:5: note:   template argument deduction/substitution fai
2522 led:
2523 In file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C
2524 _Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/source/app/test_sv_set.
2525 cpp:6:
2526 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_contain
2527 ers-JudeOnyia/cktmp/package-set_sane/source/include/ra/sv_set.hpp:68:20: note:
2528  mismatched types 'const __gnu_cxx::__normal_iterator<_Iterator, _Container>' an
2529 d 'std::size_t' {aka 'long unsigned int'}
2530    68 |      insert(*(first+i));
2531
2532       |                ~~~~~~^~~
2533 gmake[3]: *** [CMakeFiles/test_sv_set.dir/app/test_sv_
2534 set.cpp.o] Error 1
2535 gmake[3]: Leaving directory '/home/judeonyia/Documents/ECE596
2536 C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_sane/de
2537 rived'
2538 gmake[2]: *** [CMakeFiles/test_sv_set.dir/all] Error 2
2539 gmake[2]: Leaving
2540 directory '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_con
2541 tainers-JudeOnyia/cktmp/package-set_sane/derived'
2542 gmake[1]: *** [CMakeFiles/test
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2543 _sv_set.dir/rule] Error 2
2544 gmake[1]: Leaving directory '/home/judeonyia/Documents
2545 /ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-set_
2546 sane/derived'
2547 gmake: *** [test_sv_set] Error 2
2548 ERROR: build failed to generate e
2549 xecutable test_sv_set
```

```
1   /home/frodo/public/ugls_lab-4.0.70/packages/cmake-3.17.1/bin/cmake
2   -S/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
3   udeOnyia/cktmp/package-list_sane/source
4   -B/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
5   udeOnyia/cktmp/package-list_sane/derived --check-build-system
6   CMakeFiles/Makefile.cmake 0
7   /usr/bin/gmake  -f CMakeFiles/Makefile2 test_intrusive_list
8   gmake[1]: Entering directory
9   '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
10  deOnyia/cktmp/package-list_sane/derived'
11  /home/frodo/public/ugls_lab-4.0.70/packages/cmake-3.17.1/bin/cmake
12  -S/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
13  udeOnyia/cktmp/package-list_sane/source
14  -B/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
15  udeOnyia/cktmp/package-list_sane/derived --check-build-system
16  CMakeFiles/Makefile.cmake 0
17  /home/frodo/public/ugls_lab-4.0.70/packages/cmake-3.17.1/bin/cmake -E
18  cmake_progress_start
19  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
20  eOnyia/cktmp/package-list_sane/derived/CMakeFiles 2
21  /usr/bin/gmake  -f CMakeFiles/Makefile2 CMakeFiles/test_intrusive_list.dir/all
22  gmake[2]: Entering directory
23  '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
24  deOnyia/cktmp/package-list_sane/derived'
25  /usr/bin/gmake  -f CMakeFiles/test_intrusive_list.dir/build.make
26  CMakeFiles/test_intrusive_list.dir/depend
27  gmake[3]: Entering directory
28  '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
29  deOnyia/cktmp/package-list_sane/derived'
30  cd
31  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
32  eOnyia/cktmp/package-list_sane/derived &&
33  /home/frodo/public/ugls_lab-4.0.70/packages/cmake-3.17.1/bin/cmake -E
34  cmake_depends "Unix Makefiles"
35  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
36  eOnyia/cktmp/package-list_sane/source
37  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
38  eOnyia/cktmp/package-list_sane/source
39  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
40  eOnyia/cktmp/package-list_sane/derived
41  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
42  eOnyia/cktmp/package-list_sane/derived
43  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
44  eOnyia/cktmp/package-list_sane/derived/CMakeFiles/test_intrusive_list.dir/Depend
45  Info.cmake --color=
46  Scanning dependencies of target test_intrusive_list
47  gmake[3]: Leaving directory
48  '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
49  deOnyia/cktmp/package-list_sane/derived'
50  /usr/bin/gmake  -f CMakeFiles/test_intrusive_list.dir/build.make
51  CMakeFiles/test_intrusive_list.dir/build
52  gmake[3]: Entering directory
53  '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
54  deOnyia/cktmp/package-list_sane/derived'
55  [ 50%] Building CXX object
56  CMakeFiles/test_intrusive_list.dir/app/test_intrusive_list.cpp.o
57  /home/frodo/public/ugls_lab-4.0.70/bin/c++
58  -I/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
59  udeOnyia/cktmp/package-list_sane/source/include  -pedantic-errors -std=gnu++17
60  -o CMakeFiles/test_intrusive_list.dir/app/test_intrusive_list.cpp.o -c
61  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
62  eOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp
```

```
63  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
64  eOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp: In
65  instantiation of 'void test() [with T =
66  Widget]':
67  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_cont
68  ainers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:211:
69  15:   required from here
70  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_A
71  ssgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusiv
72  e_list.cpp:51:21: error: no type named 'iterator_category' in 'struct std::itera
73  tor_traits<ra::intrusive::list<Widget, &Widget::hook>::list_iterator>'
74     51 |
75  static_assert(std::is_same_v<typename std::iterator_traits<
76
77     ~~~~~^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
78     52 |     typename list::itera
79  tor>::iterator_category,
80          |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
81
82     53 |     std::bidirectional_iterator_tag>);
83          |     ~~~~~~~~~~~~~~~~~~~~~~~
84  ~~~~~~~~~~
85  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_con
86  tainers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:54:
87  21: error: no type named 'iterator_category' in 'struct std::iterator_traits<con
88  st ra::intrusive::list<Widget, &Widget::hook>::list_iterator>'
89     54 |    static_a
90  ssert(std::is_same_v<typename std::iterator_traits<
91          |     ~~~~~
92  ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
93     55 |     typename list::const_iterato
94  r>::iterator_category,
95          |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
96  ~~~~
97     56 |     std::bidirectional_iterator_tag>);
98          |     ~~~~~~~~~~~~~~~~~~~~~
99  ~~~~~~~~~~~~~~~
100 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp
101 _containers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp
102 :67:50: error: passing 'const ra::intrusive::list<Widget, &Widget::hook>::list_i
103 terator' as 'this' argument discards qualifiers [-fpermissive]
104    67 |    std::d
105 eclval<typename list::const_iterator>() =
106          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
107 ~~~~~~~~~~~~~~~~~~~~^
108    68 |    std::declval<typename list::const_iterator>()),
109
110          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
111 In file included from
112  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
113 deOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:3:
114 /home/jude
115 onyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/ckt
116 mp/package-list_sane/source/include/ra/intrusive_list.hpp:47:21: note:   in call
117  to 'ra::intrusive::list<T, Hook>::list_iterator& ra::intrusive::list<T, Hook>::
118 list_iterator::operator=(const ra::intrusive::list<T, Hook>::list_iterator&) [wi
119 th T = Widget; ra::intrusive::list_hook T::* Hook = &Widget::hook]'
120    47 |
121  list_iterator& operator=(const list_iterator& other) {
122          |
123     ^~~~~~~~
124 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_c
```

```
125 ontainers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:6
126 6:21: error: static assertion failed
127    66 |    static_assert(std::is_same_v<declt
128 ype(
129          |    ~~~~~^~~~~~~~~~~~~~~~~
130    67 |    std::declval<typ
131 ename list::const_iterator>() =
132          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
133 ~~~~~~~~~~
134    68 |    std::declval<typename list::const_iterator>()),
135
136          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
137    69 |    typename list::const
138 _iterator&>);
139          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
140 /home/judeonyia/Documen
141 ts/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-li
142 st_sane/source/app/test_intrusive_list.cpp:73:21: error: static assertion failed
143
144    73 |    static_assert(std::is_same_v<decltype(
145          |    ~~~~~^~~
146 ~~~~~~~~~~~~~~~~
147    74 |    *std::declval<typename list::const_iterator>()), con
148 st T&>);
149          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
150 /
151 home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jude
152 Onyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:77:21: error: s
153 tatic assertion failed
154    77 |    static_assert(std::is_same_v<decltype(
155
156          |     ~~~~~^~~~~~~~~~~~~~~~
157    78 |    std::declval<typename list::co
158 nst_iterator>().operator->()), const T*>);
159          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
160 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
161 /home/judeonyia/Documents/ECE596C_A
162 ssignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/sour
163 ce/app/test_intrusive_list.cpp:80:21: error: static assertion failed
164    80 |    st
165 atic_assert(std::is_same_v<decltype(
166          |    ~~~~~^~~~~~~~~~~~~~
167 ~~~~
168    81 |    ++std::declval<typename list::iterator>()), typename list::itera
169 tor&>);
170          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
171 ~~~~~~~~~~
172 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_conta
173 iners-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:83:4:
174  error: passing 'const ra::intrusive::list<Widget, &Widget::hook>::list_iterator
175 ' as 'this' argument discards qualifiers [-fpermissive]
176    83 |    ++std::declva
177 l<typename list::const_iterator>()),
178          |    ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
179 ~~~~~~~~~~~~~~~~~
180 In file included from /home/judeonyia/Documents/ECE596C_Assignme
181 nts/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/
182 test_intrusive_list.cpp:3:
183 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C
184 _Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/include/ra/intr
185 usive_list.hpp:74:20: note:   in call to 'ra::intrusive::list<T, Hook>::list_ite
186 rator ra::intrusive::list<T, Hook>::list_iterator::operator++() [with T = Widget
```

```
187 ; ra::intrusive::list_hook T::* Hook = &Widget::hook]'
188    74 |    list_iterato
189 r operator++(){
190          |         ^~~~~~~~
191 /home/judeonyia/Documents/EC
192 E596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sa
193 ne/source/app/test_intrusive_list.cpp:82:21: error: static assertion failed
194    8
195 2 |    static_assert(std::is_same_v<decltype(
196          |    ~~~~~^~~~~~~~
197 ~~~~~~~~~~
198    83 |    ++std::declval<typename list::const_iterator>()),
199          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
200    84 |    typename list::
201 const_iterator&>);
202          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
203 /home/judeonyia/Do
204 cuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/packa
205 ge-list_sane/source/app/test_intrusive_list.cpp:92:21: error: static assertion f
206 ailed
207    92 |    static_assert(std::is_same_v<decltype(
208          |         ~~~
209 ~~^~~~~~~~~~~~~~~~~
210    93 |    --std::declval<typename list::iterator>()), typ
211 ename list::iterator&>);
212          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
213 ~~~~~~~~~~~~~~~~~~~~~~~~~
214 /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_
215 Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusi
216 ve_list.cpp:95:4: error: passing 'const ra::intrusive::list<Widget, &Widget::hoo
217 k>::list_iterator' as 'this' argument discards qualifiers [-fpermissive]
218    95 |
219    --std::declval<typename list::const_iterator>()),
220          |     ^~~~~~~~~~~~~~~~~
221          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
222 In file included from /home/judeonyia/Documents
223 /ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list
224 _sane/source/app/test_intrusive_list.cpp:3:
225 /home/judeonyia/Documents/ECE596C_As
226 signments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/sourc
227 e/include/ra/intrusive_list.hpp:83:20: note:   in call to 'ra::intrusive::list<T
228 , Hook>::list_iterator ra::intrusive::list<T, Hook>::list_iterator::operator--()
229  [with T = Widget; ra::intrusive::list_hook T::* Hook = &Widget::hook]'
230    83 |
231    list_iterator operator--(){
232          |         ^~~~~~~~
233 /home/judeo
234 nyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktm
235 p/package-list_sane/source/app/test_intrusive_list.cpp:94:21: error: static asse
236 rtion failed
237    94 |    static_assert(std::is_same_v<decltype(
238          |    ~~~~~^~~~~~~~~~~~~~~~
239    95 |    --std::declval<typename list::const_iter
240 ator>()),
241          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
242    96 |
243   typename list::const_iterator&>);
244          |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
245 /
246 home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jude
```

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249  Onyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:107:49: error:
250  passing 'const ra::intrusive::list<Widget, &Widget::hook>::list_iterator' as 'th
251  is' argument discards qualifiers [-fpermissive]
252    107 |     std::declval<typename
253  list::const_iterator>()--),
254        |       ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
255  ~~~~~^~
256  In file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE5
257  96C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/test_int
258  rusive_list.cpp:3:
259  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4
260  /cpp_containers-JudeOnyia/cktmp/package-list_sane/source/include/ra/intrusive_li
261  st.hpp:87:20: note:   in call to 'ra::intrusive::list<T, Hook>::list_iterator ra
262  ::intrusive::list<T, Hook>::list_iterator::operator--(int) [with T = Widget; ra:
263  :intrusive::list_hook T::* Hook = &Widget::hook]'
264     87 |     list_iterator ope
265  rator--(int){
266        |                ^~~~~~~~
267  /home/judeonyia/Documents/ECE5
268  96C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane
269  /source/app/test_intrusive_list.cpp:106:21: error: static assertion failed
270    106
271    |   static_assert(std::is_same_v<decltype(
272        |                ~~~~~^~~~~~~~~~
273  ~~~~~~~~~~
274    107 |     std::declval<typename list::const_iterator>()--),
275        |
276     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
277    108 |     typename list::c
278  onst_iterator>);
279        |                ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
280  /home/judeonyia/Docum
281  ents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-
282  list_sane/source/app/test_intrusive_list.cpp:174:3: error: passing 'ra::intrusiv
283  e::list<Widget, &Widget::hook>::const_iterator' {aka 'const ra::intrusive::list<
284  Widget, &Widget::hook>::list_iterator'} as 'this' argument discards qualifiers [
285  -fpermissive]
286    174 |     ++ci;
287        |     ^~~~
288  In file included from /home/judeony
289  ia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/
290  package-list_sane/source/app/test_intrusive_list.cpp:3:
291  /home/judeonyia/Document
292  s/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-lis
293  t_sane/source/include/ra/intrusive_list.hpp:74:20: note:   in call to 'ra::intru
294  sive::list<T, Hook>::list_iterator ra::intrusive::list<T, Hook>::list_iterator::
295  operator++() [with T = Widget; ra::intrusive::list_hook T::* Hook = &Widget::hoo
296  k]'
297     74 |     list_iterator operator++(){
298        |                   ^~~~~~~~
299
300  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
301  deOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:176:3: error:
302   passing 'ra::intrusive::list<Widget, &Widget::hook>::const_iterator' {aka 'cons
303  t ra::intrusive::list<Widget, &Widget::hook>::list_iterator'} as 'this' argument
304   discards qualifiers [-fpermissive]
305    176 |     --ci;
306        |     ^~~~
307  In file inclu
308  ded from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_conta
309  iners-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:3:
310  /h
```

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311  ome/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeO
312  nyia/cktmp/package-list_sane/source/include/ra/intrusive_list.hpp:83:20: note:
313   in call to 'ra::intrusive::list<T, Hook>::list_iterator ra::intrusive::list<T,
314  Hook>::list_iterator::operator--() [with T = Widget; ra::intrusive::list_hook T:
315  :* Hook = &Widget::hook]'
316     83 |     list_iterator operator--(){
317        |
318        |       ^~~~~~~~
319  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Ass
320  gn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_
321  list.cpp:180:6: error: passing 'ra::intrusive::list<Widget, &Widget::hook>::cons
322  t_iterator' {aka 'const ra::intrusive::list<Widget, &Widget::hook>::list_iterato
323  r'} as 'this' argument discards qualifiers [-fpermissive]
324    180 |     ci = cl.end(
325  );
326  In file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_A
327  ssgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusiv
328  e_list.cpp:3:
329  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_
330  containers-JudeOnyia/cktmp/package-list_sane/source/include/ra/intrusive_list.hp
331  p:47:21: note:   in call to 'ra::intrusive::list<T, Hook>::list_iterator& ra::in
332  trusive::list<T, Hook>::list_iterator::operator=(const ra::intrusive::list<T, Ho
333  ok>::list_iterator&) [with T = Widget; ra::intrusive::list_hook T::* Hook = &Wid
334  get::hook]'
335     47 |     list_iterator& operator=(const list_iterator& other) {
336        |
337        |                    ^~~~~~~~
338  /home/judeonyia/Documents/ECE596C_Assignmen
339  ts/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/t
340  est_intrusive_list.cpp: In instantiation of 'void test() [with T = Gadget]':
341  /ho
342  me/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOn
343  yia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:212:15:   require
344  d from here
345  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_co
346  ntainers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:51
347  :21: error: no type named 'iterator_category' in 'struct std::iterator_traits<ra
348  ::intrusive::list<Gadget, &Gadget::hook>::list_iterator>'
349     51 |   static_assert
350  (std::is_same_v<typename std::iterator_traits<
351        |                ~~~~~^~~~~
352  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
353     52 |     typename list::iterator>::iterato
354  r_category,
355        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
356     53 |     s
357  td::bidirectional_iterator_tag>);
358        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
359  /h
360  ome/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeO
361  nyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:54:21: error: no
362   type named 'iterator_category' in 'struct std::iterator_traits<const ra::intrus
363  ive::list<Gadget, &Gadget::hook>::list_iterator>'
364     54 |   static_assert(std::is
365  _same_v<typename std::iterator_traits<
366        |                ~~~~~^~~~~~~~~~~~
367  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
368     55 |     typename list::const_iterator>::iterator_
369  category,
370        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
371     56 |
372     std::bidirectional_iterator_tag>);
```

```
373        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
374  ~
375  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-J
376  udeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:67:50: error
377  : passing 'const ra::intrusive::list<Gadget, &Gadget::hook>::list_iterator' as '
378  this' argument discards qualifiers [-fpermissive]
379     67 |     std::declval<typena
380  me list::const_iterator>() =
381        |       ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
382  ~~~~~~^
383     68 |     std::declval<typename list::const_iterator>()),
384        |     ~~
385  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
386  In file included from /home/judeon
387  yia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp
388  /package-list_sane/source/app/test_intrusive_list.cpp:3:
389  /home/judeonyia/Documen
390  ts/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-li
391  st_sane/source/include/ra/intrusive_list.hpp:47:21: note:   in call to 'ra::intr
392  usive::list<T, Hook>::list_iterator& ra::intrusive::list<T, Hook>::list_iterator
393  ::operator=(const ra::intrusive::list<T, Hook>::list_iterator&) [with T = Gadget
394  ; ra::intrusive::list_hook T::* Hook = &Gadget::hook]'
395     47 |     list_iterato
396  r& operator=(const list_iterator& other) {
397        |                    ^~~~~~~~
398
399  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Jud
400  eOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:66:21: error:
401  static assertion failed
402     66 |   static_assert(std::is_same_v<decltype(
403        |                ~~~~~^~~~~~~~~~~~~~~~~~~
404     67 |     std::declval<typename list::c
405  onst_iterator>() =
406        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
407     68 |     std::declval<typename list::const_iterator>()),
408        |     ~~~~~~~~~~~~~~~
409  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
410     69 |     typename list::const_iterator&>);
411        |
412        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
413  /home/judeonyia/Documents/ECE596C_As
414  signments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/sourc
415  e/app/test_intrusive_list.cpp:73:21: error: static assertion failed
416     73 |   sta
417  tic_assert(std::is_same_v<decltype(
418        |                ~~~~~^~~~~~~~~~~~
419  ~~~
420     74 |     *std::declval<typename list::const_iterator>()), const T&>);
421        |
422        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
423  /home/judeonyi
424  a/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/p
425  ackage-list_sane/source/app/test_intrusive_list.cpp:77:21: error: static asserti
426  on failed
427     77 |   static_assert(std::is_same_v<decltype(
428        |                ~~~~~^~~~~~~~~~~~~~~~~~~
429     78 |     std::declval<typename list::const_iterator>
430  ().operator->()), const T*>);
431        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

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435        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
436  /home/judeonyia/Documents/ECE596C_Assignments/EC
437  E596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/test_i
438  ntrusive_list.cpp:80:21: error: static assertion failed
439     80 |   static_assert(s
440  td::is_same_v<decltype(
441        |                ~~~~~^~~~~~~~~~~~~~~~~~~
442     81 |
443     ++std::declval<typename list::iterator>()), typename list::iterator&>);
444
445        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
446  /hom
447  e/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOny
448  ia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:83:4: error: passi
449  ng 'const ra::intrusive::list<Gadget, &Gadget::hook>::list_iterator' as 'this' a
450  rgument discards qualifiers [-fpermissive]
451     83 |     ++std::declval<typename li
452  st::const_iterator>()),
453        |     ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
454  ~~
455  In file included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_A
456  ssgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusiv
457  e_list.cpp:3:
458  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_
459  containers-JudeOnyia/cktmp/package-list_sane/source/include/ra/intrusive_list.hp
460  p:74:20: note:   in call to 'ra::intrusive::list<T, Hook>::list_iterator ra::int
461  rusive::list<T, Hook>::list_iterator::operator++() [with T = Gadget; ra::intrusi
462  ve::list_hook T::* Hook = &Gadget::hook]'
463     74 |     list_iterator operator++(
464      ){
465        |                   ^~~~~~~~
466  /home/judeonyia/Documents/ECE596C_Assignm
467  ents/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app
468  /test_intrusive_list.cpp:82:21: error: static assertion failed
469     82 |   static_a
470  ssert(std::is_same_v<decltype(
471        |                ~~~~~^~~~~~~~~~~~~~~~~~~
472
473     83 |     ++std::declval<typename list::const_iterator>()),
474        |     ~~~~~~~~~
475  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
476     84 |     typename list::const_iterato
477  r&>);
478        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
479  /home/judeonyia/Documents/ECE59
480  6C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/
481  source/app/test_intrusive_list.cpp:92:21: error: static assertion failed
482     92
483    |   static_assert(std::is_same_v<decltype(
484        |                ~~~~~^~~~~~~~~~~~
485  ~~~~~~~~
486     93 |     --std::declval<typename list::iterator>()), typename list::i
487  terator&>);
488        |     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
489  ~~~~~~~~~~~~
490  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_c
491  ontainers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:9
492  5:4: error: passing 'const ra::intrusive::list<Gadget, &Gadget::hook>::list_iter
493  ator' as 'this' argument discards qualifiers [-fpermissive]
494     95 |     --std::de
495  clval<typename list::const_iterator>()),
496        |     ^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

```
497  ~~~~~~~~~~~~~~~~~~~
498  In file included from /home/judeonyia/Documents/ECE596C_Assi
499  gnments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list-sane/source/
500  app/test_intrusive_list.cpp:3:
501  /home/judeonyia/Documents/ECE596C_Assignments/ECE
502  596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list-sane/source/include/ra/
503  intrusive_list.hpp:83:20: note:   in call to 'ra::intrusive::list<T, Hook>::list
504  _iterator ra::intrusive::list<T, Hook>::list_iterator::operator--() [with T = Ga
505  dget; ra::intrusive::list_hook T::* Hook = &Gadget::hook]'
506      83 |      list_ite
507  rator operator--(){
508         |                      ^~~~~~~
509  /home/judeonyia/Document
510  s/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-lis
511  t_sane/source/app/test_intrusive_list.cpp:94:21: error: static assertion failed
512
513      94 |   static_assert(std::is_same_v<decltype(
514         |                  ~~~~~^~~~
515  ~~~~~~~~~~~~~~~
516      95 |    --std::declval<typename list::const_iterator>()),
517
518         |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
519      96 |    typename li
520  st::const_iterator&>);
521         |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
522  /home/judeonyi
523  a/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/p
524  ackage-list_sane/source/app/test_intrusive_list.cpp:107:49: error: passing 'cons
525  t ra::intrusive::list<Gadget, &Gadget::hook>::list_iterator' as 'this' argument
526  discards qualifiers [-fpermissive]
527     107 |   std::declval<typename list::const_
528  iterator>()--),
529         |   ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~^~
530  In fi
531  le included from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/c
532  pp_containers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.c
533  pp:3:
534  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containe
535  rs-JudeOnyia/cktmp/package-list_sane/source/include/ra/intrusive_list.hpp:87:20:
536    note:   in call to 'ra::intrusive::list<T, Hook>::list_iterator ra::intrusive::
537  list<T, Hook>::list_iterator::operator--(int) [with T = Gadget; ra::intrusive::l
538  ist_hook T::* Hook = &Gadget::hook]'
539      87 |     list_iterator operator--(int){
540
541         |                        ^~~~~~~
542  /home/judeonyia/Documents/ECE596C_Assignmen
543  ts/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source/app/t
544  est_intrusive_list.cpp:106:21: error: static assertion failed
545     106 |   static_as
546  sert(std::is_same_v<decltype(
547         |                ~~~~~^~~~~~~~~~~~~~~~~~
548
549     107 |    std::declval<typename list::const_iterator>()--),
550         |    ~~~~~~~~~~~
551  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
552     108 |    typename list::const_iterator
553  >);
554         |    ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
555  /home/judeonyia/Documents/ECE596C_
556  Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/sou
557  rce/app/test_intrusive_list.cpp:174:3: error: passing 'ra::intrusive::list<Gadge
558  t, &Gadget::hook>::const_iterator' {aka 'const ra::intrusive::list<Gadget, &Gadg
```

```
559  et::hook>::list_iterator'} as 'this' argument discards qualifiers [-fpermissive]
560
561     174 |    ++ci;
562         |      ^~~~
563  In file included from /home/judeonyia/Documents/
564  ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_
565  sane/source/app/test_intrusive_list.cpp:3:
566  /home/judeonyia/Documents/ECE596C_Ass
567  ignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/source
568  /include/ra/intrusive_list.hpp:74:20: note:   in call to 'ra::intrusive::list<T,
569   Hook>::list_iterator ra::intrusive::list<T, Hook>::list_iterator::operator++()
570  [with T = Gadget; ra::intrusive::list_hook T::* Hook = &Gadget::hook]'
571      74 |
572      list_iterator operator++(){
573         |                      ^~~~~~~
574  /home/judeon
575  yia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp
576  /package-list_sane/source/app/test_intrusive_list.cpp:176:3: error: passing 'ra:
577  :intrusive::list<Gadget, &Gadget::hook>::const_iterator' {aka 'const ra::intrusi
578  ve::list<Gadget, &Gadget::hook>::list_iterator'} as 'this' argument discards qua
579  lifiers [-fpermissive]
580     176 |    --ci;
581         |      ^~~~
582  In file included from /hom
583  e/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOny
584  ia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:3:
585  /home/judeonyia
586  /Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/pa
587  ckage-list_sane/source/include/ra/intrusive_list.hpp:83:20: note:   in call to '
588  ra::intrusive::list<T, Hook>::list_iterator ra::intrusive::list<T, Hook>::list_i
589  terator::operator--() [with T = Gadget; ra::intrusive::list_hook T::* Hook = &Ga
590  dget::hook]'
591      83 |      list_iterator operator--(){
592
593         |                      ^~~~~~~
594  /home/judeonyia/Documents/ECE596C_Assgn_4/cpp_cont
595  ainers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:180:
596  6: error: passing 'ra::intrusive::list<Gadget, &Gadget::hook>::const_iterator' {
597  aka 'const ra::intrusive::list<Gadget, &Gadget::hook>::list_iterator'} as 'this'
598   argument discards qualifiers [-fpermissive]
599     180 |    ci = cl.end();
600  In file in
601  cluded from /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_co
602  ntainers-JudeOnyia/cktmp/package-list_sane/source/app/test_intrusive_list.cpp:3:
603
604  /home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-Ju
605  deOnyia/cktmp/package-list_sane/source/include/ra/intrusive_list.hpp:47:21: note
606  :   in call to 'ra::intrusive::list<T, Hook>::list_iterator& ra::intrusive::list
607  <T, Hook>::list_iterator::operator=(const ra::intrusive::list<T, Hook>::list_ite
608  rator&) [with T = Gadget; ra::intrusive::list_hook T::* Hook = &Gadget::hook]'
609
610      47 |    list_iterator& operator=(const list_iterator& other) {
611         |
612         |                      ^~~~~~~
613  gmake[3]: *** [CMakeFiles/test_intrusive_list.dir/app/te
614  st_intrusive_list.cpp.o] Error 1
615  gmake[3]: Leaving directory '/home/judeonyia/Do
616  cuments/ECE596C_Assignments/ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/packa
617  ge-list_sane/derived'
618  gmake[2]: *** [CMakeFiles/test_intrusive_list.dir/all] Err
619  or 2
620  gmake[2]: Leaving directory '/home/judeonyia/Documents/ECE596C_Assignments/
```

```
621  ECE596C_Assgn_4/cpp_containers-JudeOnyia/cktmp/package-list_sane/derived'
622  gmake[
623  1]: *** [CMakeFiles/test_intrusive_list.dir/rule] Error 2
624  gmake[1]: Leaving dire
625  ctory '/home/judeonyia/Documents/ECE596C_Assignments/ECE596C_Assgn_4/cpp_contain
626  ers-JudeOnyia/cktmp/package-list_sane/derived'
627  gmake: *** [test_intrusive_list]
628  Error 2
629  ERROR: build failed to generate executable test_intrusive_list
```

```
 1   commit ba7e7feadea121cd95fb57997a1bd7f18fe44262
 2   Author: JudeOnyia <60678029+JudeOnyia@users.noreply.github.com>
 3   Date:   Tue Jun 30 00:49:54 2020 -0700
 4
 5       First Commit. Set up files and folders.
 6
 7   commit e8df5dcf466b4ec67004979844b8a56c25296462
 8   Author: JudeOnyia <60678029+JudeOnyia@users.noreply.github.com>
 9   Date:   Tue Jun 30 13:19:04 2020 -0700
10
11       Added Sanitizer.cmake for ASAN and LSAN
12
13   commit d0bc14de4eda04a80e36894683d4510bcacc95e3
14   Author: Jude Onyia <judeonyia10@gmail.com>
15   Date:   Tue Jun 30 14:40:54 2020 -0700
16
17       1) Wrote default constructor for set
18
19   commit 38b52c70719ff588d02499b3db8fbcefaa1a6472
20   Author: Jude Onyia <judeonyia10@gmail.com>
21   Date:   Wed Jul 1 02:56:34 2020 -0700
22
23       1) Wrote default empty constructor
24       2) Wrote Move constructor and move assignment
25       3) Wrote Copy constructor and copy assignement
26       4) Wrote destructor, key_comp, begin and end functions
27       5) Wrote size, capacity, reserve and shrink functions
28       6) Attempted insert, clear, and find functions
29
30   commit 3cafbf8ad966f16cd6329494050f2699b00a9987
31   Author: Jude Onyia <judeonyia10@gmail.com>
32   Date:   Wed Jul 1 18:53:36 2020 -0700
33
34       1) Made corrections in insert function implementation
35       2) Made corrections in find function implementation
36       3) Wrote more tests
37
38   commit baabea4f6a09905e09cae2387b49ed7af6bfbad8
39   Author: Jude Onyia <judeonyia10@gmail.com>
40   Date:   Wed Jul 1 19:48:29 2020 -0700
41
42       1) Fixed a flaw in insert function
43       2) Wrote constructor that takes in a range
44
45   commit ba332fda1176af52faee7ca17df07d5d7c297483
46   Author: Jude Onyia <judeonyia10@gmail.com>
47   Date:   Thu Jul 2 00:01:52 2020 -0700
48
49       1) Tested and fixed in regard to using a different comparing object
50       2) Wrote const find function
51
52   commit f0becd441d845cd81bdf14c106dff6ca3eb20623
53   Author: Jude Onyia <judeonyia10@gmail.com>
54   Date:   Thu Jul 2 01:50:25 2020 -0700
55
56       1) Wrote erase function
57       2) Wrote swap function
58
59   commit 48b76f05d6cae0ead8953467afc5067864e69882
60   Author: JudeOnyia <60678029+JudeOnyia@users.noreply.github.com>
61   Date:   Thu Jul 2 02:45:09 2020 -0700
62
```

```
63        Set up for intrusive doubly link list class
64
65   commit f842067f2d0263b41e798c7d04e0eff081d96386
66   Author: JudeOnyia <60678029+JudeOnyia@users.noreply.github.com>
67   Date:    Thu Jul 2 13:31:45 2020 -0700
68
69        Added Parent_from_member function
70
71   commit c6a28ecc27ec734235d62edd6f150076a2c82516
72   Author: Jude Onyia <judeonyia10@gmail.com>
73   Date:    Thu Jul 2 21:10:52 2020 -0700
74
75        1) Added members to list_hook
76        2) Wrote default constr, destr,move constr, and move assignment of list
77        3) Wrote size, insert, clear, begin and end functions of list
78
79   commit 81b82c16e37521da760b1074462299e294124583
80   Author: Jude Onyia <judeonyia10@gmail.com>
81   Date:    Thu Jul 2 21:14:39 2020 -0700
82
83        0) Without tmp folder
84        1) Added members to list_hook
85        2) Wrote default constr, destr,move constr, and move assignment of list
86        3) Wrote size, insert, clear, begin and end functions of list
87
88   commit f452b87577ac6071367453a5fb42b50a1a4f3d67
89   Author: Jude Onyia <judeonyia10@gmail.com>
90   Date:    Fri Jul 3 01:20:19 2020 -0700
91
92        1) Wrote list_iterator class
93        2) Modified functions that used list_iterator
94
95   commit dc5a4c0eab9ea54321d179b28eeeda0167e856ca
96   Author: Jude Onyia <judeonyia10@gmail.com>
97   Date:    Fri Jul 3 02:09:56 2020 -0700
98
99        1) Performed tests on member functions made so far
100
101  commit 049e9257cfc21c36107b991a175d6bc628a6067f
102  Author: Jude Onyia <judeonyia10@gmail.com>
103  Date:    Fri Jul 3 05:10:31 2020 -0700
104
105        1) Wrote swap member function
106        2) Wrote push abck and pop back member functions
```

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Course:       ECE 596C

Due Date:     July 3, 2020

Assignment 4: Non – Programming Exercise

8.17 a)

For this scenario, one can use a bounded array container (i.e. the standard library's array class). Assuming there is sufficient memory to hold the large set of integers, this container should be sufficient because all its contents are known at the time of its creation and they do not change. Also, the container is contiguous in memory, therefore, it can easily and quickly iterate over elements in sorted order. A particular value in this container can easily be found.

8.17 b)

A doubly linked list container can be used for this scenario. For example, the boost::intrusive::list container can be used because elements need to be inserted in and removed from any position in the container. Assuming a sorted order that is the same as the container's order, the container also allows easy iteration over the elements in the sorted order because each element can find its successor and predecessor in constant time. A particular value in this container can easily be found.

8.17 c)

For this scenario, a singly linked list container will be sufficient. An example is the boost::intrusive::slist container, which can be used because elements need to be inserted in any position in the container. Assuming that the element with the largest value is always the element at the start of the list, this container can accomplish the task of removing the largest value quickly because it can remove elements at the start of the list in constant time. Since the maximum size is known at the time of its creation, memory can be allocated for the list (without creating any objects / calling any constructors).

8.18)

In a case where a program uses a container that can store a certain maximum number of objects, one might want to separate the operations of memory allocation and construction. This is desired because one would want enough memory available for the container to use if it needs to hold the maximum amount of objects, but one would not want to spend time and resources creating that many objects if it might not need them. Therefore, these operations must be separated so that after allocation, memory is guaranteed for the container, but objects are not created in that memory until the objects are needed.

Similarly, one might want to separate the operations of memory deallocation and destruction because one might want to destroy each object right after processing. Then, when the container is empty, quickly deallocate the memory for the container. If these operations are not separated, this would lead to having to destroy all the objects at the end and spending a considerable amount of time

destroying objects before deallocating. This amount of time spent at the end might be very inconvenient.

8.19)

Two advantages that array-based containers have over node-based containers include:

- Array-based containers can access any element in constant time, whereas, node-based containers can only guarantee finding a successor (and predecessor if doubly linked) in constant time.
- Array-based containers have less overhead than node-based containers because array-based containers use contiguous memory.

8.23 a)

In this scenario, an intrusive container should be used because the object type is neither copyable nor movable, therefore, nonintrusive containers cannot be used since they depend on creating a copy or moving an object. Also, some objects could be in the first container (for existing processes) and the second (for processes ready to run). Unlike nonintrusive containers, intrusive containers allow objects to be in more than one container.

8.23 b)

An intrusive container should be used since none of the nonintrusive containers that are available for use provide stable references due to other design constraints.

8.23 c)

A nonintrusive container should be used because of the mutual exclusive nature of std::mutex. It can not belong to more than one container, this would defeat the purpose of mutual exclusion, therefore, it must be in a nonintrusive container. Assuming all mutexes are created within their respective containers.

```
1   # Definition of options "ENABLE_ASAN" and "ENABLE_LSAN" for sanitizers
2   include(Sanitizers.cmake)
3
4   # Specify Minimum Required Version
5   cmake_minimum_required(VERSION 3.1 FATAL_ERROR)
6
7   # Specify Project and Language
8   project(cpp_containers LANGUAGES CXX)
9
10  set(CMAKE_BUILD_TYPE Debug)
11
12  # Set Include Directory
13  include_directories(include)
14
15  # Add Executable Program
16  add_executable(test_sv_set app/test_sv_set.cpp)
17  add_executable(test_intrusive_list app/test_intrusive_list.cpp)
```

```cmake
1   # The ENABLE_ASAN option sets the Address Sanitizer
2   option(ENABLE_ASAN "Enable Asan" false)
3
4   if(ENABLE_ASAN)
5       set(CMAKE_CXX_FLAGS "${CMAKE_CXX_FLAGS} -fsanitize=address")
6       set(CMAKE_EXE_LINKER_FLAGS "${CMAKE_EXE_LINKER_FLAGS} -fsanitize=address")
7       message("Enabled Address Sanitizer")
8   endif()
9
10  # The ENABLE_LSAN option sets the Leak Sanitizer
11  option(ENABLE_LSAN "Enable Lsan" false)
12
13  if(ENABLE_LSAN)
14      set(CMAKE_CXX_FLAGS "${CMAKE_CXX_FLAGS} -fsanitize=leak")
15      set(CMAKE_EXE_LINKER_FLAGS "${CMAKE_EXE_LINKER_FLAGS} -fsanitize=leak")
16      message("Enabled Leak Sanitizer")
17  endif()
```

```cpp
1    #ifndef SVSETHPP
2    #define SVSETHPP
3
4    #include<stddef.h>
5    #include<functional>
6    #include<memory>
7    #include<utility>
8    #include<algorithm>
9
10
11   namespace ra::container {
12
13       // A class representing a set of unique elements (which uses
14       // a sorted array).
15       template <class Key, class Compare = std::less<Key>>
16       class sv_set {
17           public:
18               // A dummy type used to indicate that elements in a range
19               // are both ordered and unique.
20               struct ordered_and_unique_range {};
21
22               // The type of the elements held by the container.
23               // This is simply an alias for the template parameter Key.
24               using value_type = Key;
25               using key_type = Key;
26
27               // The type of the function/functor used to compare two keys.
28               // This is simply an alias for the template parameter Compare.
29               using key_compare = Compare;
30
31               // An unsigned integral type used to represent sizes.
32               using size_type = std::size_t;
33
34               // The mutable (random-access) iterator type for the
35               // container.
36               // This type must support all of the functionality associated
37               // with a random-access iterator.
38               using iterator = Key*;
39
40               // The non-mutable (random-access) const_iterator type for
41               // the container.
42               // This type must support all of the functionality associated
43               // with a random-access iterator.
44               using const_iterator = const Key*;
45
46               // Creates an empty set (i.e., a set containing no elements)
47               // with a capacity of zero (i.e., no allocated storage for
48               // elements).
49               // Time complexity: Constant.
50               sv_set() noexcept(std::is_nothrow_default_constructible<key_compare>
     ::value) : begin_(nullptr), end_(nullptr), finish_(nullptr), compare_obj_(key_co
     mpare()) {}
51
52               // Create a set consisting of the n elements in the
53               // range starting at first, where the elements in the range
54               // must be both unique and ordered with respect to the
55               // comparison operation embodied by the key_compare type.
56               // If the specified range is not both ordered and unique,
57               // the behavior of this function is undefined.
58               // Time complexity: Linear in n.
59               // Note: The parameter of type ordered_and_unique_range is always
60               // ignored. This parameter is only present to allow for future expan
```

```
        sion
61              // (i.e., adding a constructor that does not require an ordered
62              // and unique range).
63              // Note: The type InputIterator must meet the requirements of
64              // an input iterator.
65              template <class InputIterator>
66              sv_set(ordered_and_unique_range, InputIterator first, std::size_t n)
    : begin_(nullptr), end_(nullptr), finish_(nullptr), compare_obj_(key_compare())
    {
67                      for(std::size_t i=0; i<n; ++i){
68                          insert(*(first+i));
69                      }
70              }
71
72              // Move construction.
73              // Creates a new set by moving from the specified set other.
74              // After construction, the source set (i.e., other) is
75              // guaranteed to be empty.
76              // Time complexity: Constant.
77              sv_set(sv_set&& other) noexcept(std::is_nothrow_move_constructible<k
    ey_compare>::value) : compare_obj_(key_compare()) {
78                      begin_ = other.begin_;
79                      other.begin_ = nullptr;
80                      end_ = other.end_;
81                      other.end_ = nullptr;
82                      finish_ = other.finish_;
83                      other.finish_ = nullptr;
84
85              }
86
87              // Move assignment.
88              // Assigns the value of the specified set other to *this
89              // via a move operation. After the move operation, the source set (i
    .e., other)
90              // is guaranteed to be empty. Time complexity: Linear in size().
91              // Precondition: The objects *this and other are distinct.
92              sv_set& operator=(sv_set&& other) noexcept(std::is_nothrow_move_assi
    gnable<key_compare>::value){
93                      if(this != &other){
94                          clear();
95                          ::operator delete(begin_);
96                          size_type finish_position = other.size();
97                          size_type end_position = other.capacity();
98                          begin_ = std::move(other.begin_);
99                          end_ = begin_ + end_position;
100                         finish_ = begin_ + finish_position;
101                         other.begin_ = nullptr;
102                         other.end_ = nullptr;
103                         other.finish_ = nullptr;
104                     }
105                     return *this;
106             }
107
108             // Copy construction.
109             // Creates a new set by copying from the specified set other.
110             // Time complexity: Linear in other.size().
111             sv_set(const sv_set& other) : compare_obj_(key_compare()) {
112                     begin_ = static_cast<key_type*>(::operator new(other.size() * si
    zeof(key_type)));
113                     end_ = begin_ + other.size();
114                     try{
115                         finish_ = std::uninitialized_copy(other.begin_, other.finish
```

```
    _, begin_);
116                    }
117                    catch(...){
118                        ::operator delete(begin_);
119                        throw;
120                    }
121                }
122
123            // Copy assignment.
124            // Assigns the value of the specified set other to *this.
125            // Time complexity: Linear in size() and other.size().
126            sv_set& operator=(const sv_set& other){
127                if(this != &other){
128                    clear();
129                    if(other.size() > capacity()) {grow(other.size());}
130                    finish_ = std::uninitialized_copy(other.begin_, other.finish
    _, begin_);
131                }
132                return *this;
133            }
134
135            // Erases all elements in the container and destroys the container.
136            // Time complexity: Linear in size().
137            ~sv_set(){
138                clear();
139                ::operator delete(begin_);
140            }
141
142            // Returns the comparison object for the container.
143            // Time complexity: Constant.
144            key_compare key_comp() const { return compare_obj_; }
145
146            // Returns an iterator referring to the first element in the
147            // set if the set is not empty and end() otherwise.
148            // Time complexity: Constant.
149            const_iterator begin() const noexcept {
150                if(finish_!=begin_){
151                        return begin_;
152                }
153                else{
154                    return end_;
155                }
156            }
157            iterator begin() noexcept {
158                if(finish_!=begin_){
159                    return begin_;
160                }
161                else{
162                    return end_;
163                }
164            }
165
166            // Returns an iterator referring to the fictitious
167            // one-past-the-end element for the set. Time complexity: Constant.
168            const_iterator end() const noexcept { return end_; }
169            iterator end() noexcept { return end_; }
170
171            // Returns the number of elements in the set (i.e., the size of the
    set).
172            // Time complexity: Constant.
173            size_type size() const noexcept { return finish_-begin_; }
174
```

```
175                    // Returns the number of elements for which storage is
176                    // available (i.e., the capacity of the set). This value is
177                    // always at least as great as size().
178                    // Time complexity: Constant
179                    size_type capacity() const noexcept { return end_-begin_; }
180
181                    // Reserves storage in the container for at least n elements.
182                    // After this function has been called with a value of n, it
183                    // is guaranteed that no memory-allocation is needed as long
184                    // as the size of the container does not exceed n.
185                    // Calling this function has no effect if the capacity of the
186                    // container is already at least n (i.e., the capacity of
187                    // the container is never reduced by this function).
188                    // Time complexity: At most linear in size().
189                    void reserve(size_type n){
190                        if(n > capacity()){
191                            key_type* newBegin = static_cast<key_type*>(::operator new(n
     * sizeof(key_type)));
192                            /*iterator newFinish = newBegin;
193                            for(iterator i=begin_; i<finish_; ++i){
194                                *newFinish = *i;
195                                ++newFinish;
196                            }*/
197                            size_type oldSize = size();
198                            try{
199                                if(begin_!=nullptr && end_!=nullptr && finish_!=nullptr)
     {
200                                    std::uninitialized_copy(begin_,finish_,newBegin);
201                                }
202                            } catch(...){
203                                ::operator delete(newBegin);
204                                throw;
205                            }
206                            ::operator delete(begin_);
207                            begin_ = newBegin;
208                            end_ = begin_ + n;
209                            finish_ = begin_ + oldSize;
210                            //finish_ = newFinish;
211                        }
212                    }
213
214                    // Reduces the capacity of the container to the container size.
215                    // If the capacity of the container is greater than its size,
216                    // the capacity is reduced to the size of the container.
217                    // Calling this function has no effect if the capacity of the
218                    // container does not exceed its size.
219                    // Time complexity: At most linear in size().
220                    void shrink_to_fit(){
221                        if(size() < capacity()){
222                            key_type* newBegin = static_cast<key_type*>(::operator new(s
     ize() * sizeof(key_type)));
223                            /*iterator newFinish = newBegin;
224                            for(iterator i=begin_; i<finish_; ++i){
225                                *newFinish = *i;
226                                ++newFinish;
227                            }
228                            clear();*/
229                            size_type oldSize = size();
230                            try{
231                                if(begin_!=nullptr && end_!=nullptr && finish_!=nullptr)
     {
232                                    std::uninitialized_copy(begin_,finish_,newBegin);
```

```
233                                 }
234                             } catch(...){
235                                 ::operator delete(newBegin);
236                                 throw;
237                             }
238                             ::operator delete(begin_);
239                             begin_ = newBegin;
240                             finish_ = begin_+oldSize;
241                             end_ = begin_ + size();
242                         }
243                 }
244
245             // Inserts the element x in the set.
246             //If the element x is already in the set, no insertion is
247             // performed (since a set cannot contain duplicate values).
248             // Return value: The second (i.e., boolean) component of the returne
    d pair
249             // is true if and only if the insertion takes place; and the
250             // first (i.e., iterator) component of the pair refers to
251             // the element with key equivalent to the key of x
252             // (i.e., the element inserted if insertion took place or
253             // the element found with an equal key if insertion did not
254             // take place).
255             // Time complexity: Search logarithmic in size() plus
256             // insertion linear in either number of elements with larger
257             // keys than x (if size() < capacity()) or size()
258             // (if size() == capacity()).
259             std::pair<iterator, bool> insert(const key_type& x){
260                 key_type temp;
261                 key_type hold;
262                 bool search_done = false;
263                 bool found_x = false;
264                 iterator s_begin = begin_;
265                 iterator s_finish = finish_;
266                 iterator s_mid;
267                 if(begin_!=finish_){
268                     while(search_done == false){
269                         s_mid = ((s_finish - s_begin)/2) + s_begin;
270                         if(!compare_obj_(x,*s_mid) && !compare_obj_(*s_mid,x)){
271                             search_done = true;
272                             found_x = true;
273                         }
274                         else if(s_mid==s_begin){
275                         //else if(s_mid==s_begin || s_mid==(s_finish-size_type(1
    ))){
276                             search_done = true;
277                         }
278                         else if(compare_obj_(x,*s_mid)){
279                             s_finish = s_mid; // - size_type(1);
280                         }
281                         else{
282                             s_begin = s_mid; //+ size_type(1);
283                         }
284                     }
285                 }
286                 if(found_x){
287                     return std::pair<iterator,bool>(s_mid,false);
288                 }
289                 else{
290                     if(capacity()==size()){
291                         size_type s_mid_pos = s_mid - begin_;
292                         reserve(size()+size_type(1));
```

```
293                                    s_mid = begin_ + s_mid_pos;
294                                }
295                                if(begin_!=finish_){
296                                    if(compare_obj_(x,*begin_)){ s_mid = begin_; }
297                                    finish_ = new (static_cast<void*>(finish_)) key_type;
298                                    finish_ = finish_ + size_type(1);
299                                    if(compare_obj_(x,*s_mid)){
300                                        hold = *s_mid;
301                                        *s_mid = x;
302                                        for(iterator i=(s_mid+size_type(1)); i<finish_; ++i)
    {
303                                            temp = *i;
304                                            *i = hold;
305                                            hold = temp;
306                                        }
307                                        return std::pair<iterator,bool>(s_mid,true);
308                                    }
309                                    else{
310                                        hold = *(s_mid+size_type(1));
311                                        *(s_mid+size_type(1)) = x;
312                                        for(iterator i=(s_mid+size_type(2)); i<finish_; ++i)
    {
313                                            temp = *i;
314                                            *i = hold;
315                                            hold = temp;
316                                        }
317                                        return std::pair<iterator,bool>(s_mid+size_type(1),t
    rue);
318                                    }
319                                }
320                                else{
321                                    finish_ = new (static_cast<void*>(finish_)) key_type;
322                                    finish_ = finish_ + size_type(1);
323                                    *begin_ = x;
324                                    return std::pair<iterator,bool>(begin_,true);
325                                }
326                            }
327                        }
328
329            // Erases the element referenced by pos from the container.
330            // Returns an iterator referring to the element following the
331            // erased one in the container if such an elements exists or
332            // end() otherwise.
333            // Time complexity: Linear in number of elements with larger
334            // keys than x.
335            iterator erase(const_iterator pos){
336                if(pos < (finish_-1)){
337                    size_type pos_s = pos - begin_;
338                    for(size_type i=pos_s; i<(size()-1); ++i){
339                        *(begin_+i) = *(begin_+i+1);
340                    }
341                    (finish_-1)->~Key();
342                    finish_ = finish_ - 1;
343                    return (begin_ + pos_s);
344                }
345                else if(pos == (finish_-1)){
346                    pos->~Key();
347                    finish_ = finish_ - 1;
348                    return finish_;
349                }
350                else{
351                    return finish_;
```

```
352                         }
353                     }
354
355             // Swaps the contents of the container with the contents of the
356             // container x.
357             // Time complexity: Constant.
358             void swap(sv_set& x) noexcept(std::is_nothrow_swappable_v<key_compar
   e>){
359                 iterator temp_begin = begin_;
360                 iterator temp_finish = finish_;
361                 iterator temp_end = end_;
362                 begin_ = x.begin_;
363                 finish_ = x.finish_;
364                 end_ = x.end_;
365                 x.begin_ = temp_begin;
366                 x.finish_ = temp_finish;
367                 x.end_ = temp_end;
368             }
369
370             // Erases any elements in the container, yielding an empty
371             // container.
372             // Time complexity: Linear in size().
373             void clear() noexcept{
374                 if(size()){
375                     for(iterator i=begin_; i<finish_; ++i){
376                         i->~Key();
377                     }
378                     //std::destroy(begin_,finish_);
379                     finish_ = begin_;
380                 }
381             }
382
383             // Searches the container for an element with the key k.
384             // If an element is found, an iterator referencing the element
385             // is returned; otherwise, end() is returned.
386             // Time complexity: Logarithmic.
387             iterator find(const key_type& k){
388                 bool search_done = false;
389                 bool found_k = false;
390                 iterator s_begin = begin_;
391                 iterator s_finish = finish_;
392                 iterator s_mid;
393                 if(begin_!=finish_){
394                     while(search_done == false){
395                         s_mid = ((s_finish - s_begin)/2) + s_begin;
396                         if(!compare_obj_(k,*s_mid) && !compare_obj_(*s_mid,k)){
397                             search_done = true;
398                             found_k = true;
399                         }
400                         else if(s_mid==s_begin){
401                             search_done = true;
402                         }
403                         else if(compare_obj_(k,*s_mid)){
404                             s_finish = s_mid; //- size_type(1);
405                         }
406                         else{
407                             s_begin = s_mid; //+ size_type(1);
408                         }
409                     }
410                 }
411                 if(found_k){
412                     return s_mid;
```

```
413                         }
414                     else{
415                         return end();
416                     }
417                 }
418
419             const_iterator find(const key_type& k) const{
420                 bool search_done = false;
421                 bool found_k = false;
422                 iterator s_begin = begin_;
423                 iterator s_finish = finish_;
424                 iterator s_mid;
425                 if(begin_!=finish_){
426                     while(search_done == false){
427                         s_mid = ((s_finish - s_begin)/2) + s_begin;
428                         if(!compare_obj_(k,*s_mid) && !compare_obj_(*s_mid,k)){
429                             search_done = true;
430                             found_k = true;
431                         }
432                         else if(s_mid==s_begin){
433                             search_done = true;
434                         }
435                         else if(compare_obj_(k,*s_mid)){
436                             s_finish = s_mid; //- size_type(1);
437                         }
438                         else{
439                             s_begin = s_mid; // + size_type(1);
440                         }
441                     }
442                 }
443                 if(found_k){
444                     return s_mid;
445                 }
446                 else{
447                     return end();
448                 }
449             }
450
451         private:
452             //char* buffer_;
453             key_type* begin_;
454             key_type* end_;
455             key_type* finish_;
456             key_compare compare_obj_;
457
458
459     };
460
461 }
462 #endif
```

```cpp
1    #include"ra/sv_set.hpp"
2    #include<iostream>
3    #include<utility>
4    #include<functional>
5
6    int main(){
7        using std::cout;
8        using std::endl;
9        using set = typename ra::container::sv_set<int>;
10       using ourange = typename ra::container::sv_set<int>::ordered_and_unique_rang
     e;
11       //using set = typename ra::container::sv_set<int, std::greater<int>>;
12       //using ourange = typename ra::container::sv_set<int, std::greater<int>>::or
     dered_and_unique_range;
13       // Test Default constructor
14       set obj_A;
15       // Test Move constructor and move assignment
16       set obj_B(std::move(obj_A));
17       set obj_C = std::move(obj_A);
18       // Test Copy constructor and copy assignment
19       set obj_D(obj_B);
20       set obj_E = obj_D;
21       // Test key compare function
22       //cout<< (obj_E.key_comp()) << endl;
23       // Test reserve
24       obj_E.reserve(10);
25       // Test insert
26       obj_E.insert(7);
27       obj_E.insert(2);
28       obj_E.insert(5);
29       set obj_EE(obj_E);
30       // Test begin, finish,end,size,and capacity
31       cout<<(*(obj_E.begin()))<<" "<<(*(obj_E.begin()+1))<<" "<<(*(obj_E.begin()+2)
     )<<endl;
32       cout<<(obj_E.size())<<" "<<(obj_E.capacity())<<endl;
33       // Test shrink
34       obj_E.shrink_to_fit();
35       cout<<(*(obj_E.begin()))<<" "<<(*(obj_E.begin()+1))<<" "<<(*(obj_E.begin()+2)
     )<<endl;
36       cout<<(obj_E.size())<<" "<<(obj_E.capacity())<<endl;
37       // Test find
38       cout<<(*(obj_E.find(5)))<<endl;
39       // Test clear
40       obj_E.clear();
41       cout<<(obj_E.size())<<" "<<(obj_E.capacity())<<endl;
42       // Test constructor with range of values given
43       int buf_1[] = {6,3,5,4,7,3,1,4,2,6,9};
44       set obj_F(ourange(),buf_1,11);
45       cout<<(obj_F.size())<<" "<<(obj_F.capacity())<<endl;
46       for(int i=0; i<(obj_F.size()); ++i){
47           cout<<(*(obj_F.begin()+i))<<" ";
48       }
49       cout<<endl;
50       // Test constant find
51       const set obj_G(obj_F);
52       cout<<(*(obj_G.find(7)))<<endl;
53       // Test erase
54       cout<<(obj_F.size())<<endl;
55       obj_F.erase(obj_F.find(3));
56       for(int i=0; i<(obj_F.size()); ++i){
57           cout<<(*(obj_F.begin()+i))<<" ";
58       }
```

```
59        cout<<endl;
60        cout<<(obj_F.size())<<endl;
61        // Test swap
62        obj_F.swap(obj_EE);
63        for(int i=0; i<(obj_EE.size()); ++i){
64            cout<<(*(obj_EE.begin()+i))<<" ";
65        }
66        cout<<endl;
67        for(int i=0; i<(obj_F.size()); ++i){
68            cout<<(*(obj_F.begin()+i))<<" ";
69        }
70        cout<<endl;
71
72
73
74
75
76    }
```

```cpp
1    #ifndef INTRUSIVELISTHPP
2    #define INTRUSIVELISTHPP
3
4    #include"parent_from_member.hpp"
5    #include<utility>
6
7    namespace ra::intrusive {
8
9        // Per-node list management information class.
10       // The implementation-defined type that contains per-node list
11       // management information (i.e., successor and predecessor).
12       // This class has the list class template as a friend.
13       // This type must contain pointers (of type list_hook*) to the
14       // next and previous node in the list.
15       class list_hook {
16           public:
17               // The only allowable public members for this class
18               // are the ones listed below.
19               // The particular behavior of the following special
20               // member functions are implementation defined and
21               // may be defaulted if appropriate.
22               list_hook() : next_(this), prev_(this) {}
23               list_hook(const list_hook&) = default;
24               list_hook(list_hook&&) = default;
25               list_hook& operator=(const list_hook&) = default;
26               list_hook& operator=(list_hook&&) = default;
27               ~list_hook() = default;
28               template<class T, list_hook T::* Hook>
29               friend class list;
30               friend class list_iterator;
31           private:
32               list_hook* next_;
33               list_hook* prev_;
34       };
35
36       // Intrusive doubly-linked list (with sentinel node).
37       template <class T, list_hook T::* Hook>
38       class list {
39           public:
40               class list_iterator{
41                   public:
42                       list_iterator() : ptr_(nullptr) {}
43                       list_iterator(list_hook* ptrval) : ptr_(ptrval) {}
44                       list_iterator(T* ptrT) : ptr_(&(ptrT->*hook_ptr)){}
45                       ~list_iterator() = default;
46                       list_iterator(const list_iterator& other) : ptr_(other.ptr_)
    {}
47                       list_iterator& operator=(const list_iterator& other) {
48                           ptr_ = other.ptr_;
49                       }
50                       list_iterator& operator=(list_hook* otherPtr) {
51                           ptr_ = otherPtr;
52                       }
53                       bool operator==(const list_iterator& other) const {
54                           return (ptr_==(other.ptr_));
55                       }
56                       bool operator==(list_hook* otherPtr) const {
57                           return (ptr_==otherPtr);
58                       }
59                       bool operator!=(const list_iterator& other) const {
60                           return (ptr_!=(other.ptr_));
61                       }
```

```cpp
62                        bool operator!=(list_hook* otherPtr) const {
63                            return (ptr_!=otherPtr);
64                        }
65                        T* operator->() const {
66                            T* el_ptr = ra::util::parent_from_member<value_type,list
     _hook>(ptr_,hook_ptr);
67                            return el_ptr;
68                        }
69                        T& operator*() const{
70                            T* el_ptr = ra::util::parent_from_member<value_type,list
     _hook>(ptr_,hook_ptr);
71                            return (*el_ptr);
72                        }
73
74                        list_iterator operator++(){
75                            ptr_ = ptr_->next_;
76                            return *this;
77                        }
78                        list_iterator operator++(int){
79                            list_iterator oldIter(*this);
80                            ptr_ = ptr_->next_;
81                            return oldIter;
82                        }
83                        list_iterator operator--(){
84                            ptr_ = ptr_->prev_;
85                            return *this;
86                        }
87                        list_iterator operator--(int){
88                            list_iterator oldIter(*this);
89                            ptr_ = ptr_->prev_;
90                            return oldIter;
91                        }
92                        list_hook* getPtr() const { return ptr_; }
93                    private:
94                        list_hook* ptr_;
95                };
96
97                // The type of the elements in the list.
98                using value_type = T;
99
100                // The pointer-to-member associated with the list hook object.
101                static constexpr list_hook T::* hook_ptr = Hook;
102
103                // The type of a mutating reference to a node in the list.
104                using reference = T&;
105
106                // The type of a non-mutating reference to a node in the list.
107                using const_reference = const T&;
108
109                // The mutating (bidirectional) iterator type for the list.
110                // This type must provide all of the functionality of a
111                // bidirectional iterator.
112                // The Boost Iterator library may be used to implement this
113                // type.
114                using iterator = list_iterator;
115
116                // The non-mutating (bidirectional) iterator type for the list.
117                // This type must provide all of the functionality of a
118                // bidirectional iterator.
119                // The Boost Iterator library may be used to implement this
120                // type.
121                using const_iterator = const list_iterator;
```

```
122
123              // An unsigned integral type used to represent sizes.
124              using size_type = std::size_t;
125
126              // Creates an empty list.
127              // Time complexity: Constant.
128              list() : size_(0) {}
129
130              // Erases any elements from the list and then destroys the list.
131              // Time complexity: Either linear or constant.
132              ~list(){
133                  clear();
134              }
135
136              // Move construction.
137              // The elements in the source list (i.e., other) are moved from
138              // the source list to the destination list (i.e., *this), preserving
139              // their relative order.
140              // After the move, the source list is empty.
141              // Time complexity: Constant.
142              list(list&& other){
143                  (other.sent_node_.next_)->prev_ = &sent_node_;
144                  (other.sent_node_.prev_)->next_ = &sent_node_;
145                  sent_node_.next_ = other.sent_node_.next_;
146                  sent_node_.prev_ = other.sent_node_.prev_;
147                  size_ = other.size_;
148                  other.sent_node_.next_ = &(other.sent_node_);
149                  other.sent_node_.prev_ = &(other.sent_node_);
150                  other.size_ = size_type(0);
151              }
152
153              // Move assignment.
154              // The elements in the source list (i.e., other) are moved from
155              // the source list to the destination list (i.e., *this),
156              // preserving their relative order.
157              // If *this is not empty, *this is cleared before the move operation
158              // is applied.
159              // After the move, the source list is empty.
160              // Precondition: The objects *this and other are distinct.
161              // Time complexity: Constant or linear in size of *this.
162              list& operator=(list&& other){
163                  if(size_!=size_type(0)){
164                      clear();
165                  }
166                  (other.sent_node_.next_)->prev_ = &sent_node_;
167                  (other.sent_node_.prev_)->next_ = &sent_node_;
168                  sent_node_.next_ = other.sent_node_.next_;
169                  sent_node_.prev_ = other.sent_node_.prev_;
170                  size_ = other.size_;
171                  other.sent_node_.next_ = &(other.sent_node_);
172                  other.sent_node_.prev_ = &(other.sent_node_);
173                  other.size_ = size_type(0);
174                  return *this;
175              }
176
177              // Do not allow the copying of lists.
178              list(const list&) = delete;
179              list& operator=(const list&) = delete;
180
181              // Swaps the elements of *this and x.
182              // Swapping the elements of a list with itself has no effect.
183              // Time complexity: Constant.
```

```
184                  void swap(list& x){
185                      list temp(std::move(x));
186                      x = std::move(*this);
187                      *this = std::move(temp);
188                  }
189
190                  // Returns the number of elements in the list.
191                  // Time complexity: Constant.
192                  size_type size() const { return size_; }
193
194                  // Inserts an element in the list before the element referred to
195                  // by the iterator pos.
196                  // An iterator that refers to the inserted element is returned.
197                  // Time complexity: Constant.
198                  iterator insert(iterator pos, value_type& value){
199                      if(size_ == size_type(0)){
200                          sent_node_.next_ = &(value.*hook_ptr);
201                          sent_node_.prev_ = &(value.*hook_ptr);
202                          (value.*hook_ptr).next_ = &(sent_node_);
203                          (value.*hook_ptr).prev_ = &(sent_node_);
204                      }
205                      else{
206                          list_hook* next_hook = pos.getPtr();
207                          list_hook* current_hook = &(value.*hook_ptr);
208                          list_hook* prev_hook = next_hook->prev_;
209                          prev_hook->next_ = current_hook;
210                          current_hook->prev_ = prev_hook;
211                          current_hook->next_ = next_hook;
212                          next_hook->prev_ = current_hook;
213                      }
214                      ++size_;
215                      list_hook* return_hook = &(value.*hook_ptr);
216                      iterator return_ptr = iterator(return_hook);
217                      //iterator elmnt_ptr = ra::util::parent_from_member<value_type,l
     ist_hook>(current_hook,hook_ptr);
218                      return return_ptr;
219                  }
220
221                  // Erases the element in the list at the position specified by the
222                  // iterator pos.
223                  // An iterator that refers to element following the erased element
224                  // is returned if such an element exists; otherwise, end() is
225                  // returned.
226                  // Time complexity: Constant.
227                  iterator erase(iterator pos){
228                      if(size_ == size_type(0)){
229                          return end();
230                      }
231                      else{
232                          list_hook* current_hook = pos.getPtr();
233                          list_hook* prev_hook = current_hook->prev_;
234                          list_hook* next_hook = current_hook->next_;
235                          prev_hook->next_ = next_hook;
236                          next_hook->prev_ = prev_hook;
237                          current_hook->prev_ = current_hook;
238                          current_hook->next_ = current_hook;
239                          --size_;
240                          return (iterator(next_hook));
241                      }
242                  }
243
244                  // Inserts the element with the value x at the end of the list.
```

```
245                    // Time complexity: Constant.
246                    void push_back(value_type& x){
247                        iterator res = insert(end(),x);
248                    }
249
250                    // Erases the last element in the list.
251                    // Precondition: The list is not empty.
252                    // Time complexity: Constant.
253                    void pop_back(){
254                        iterator last = --(end());
255                        iterator res = erase(last);
256                    }
257
258                    // Returns a reference to the last element in the list.
259                    // Precondition: The list is not empty.
260                    // Time complexity: Constant.
261                    reference back(){
262                        list_hook* last_hook = sent_node_.prev_;
263                        value_type* last_element = ra::util::parent_from_member<value_ty
       pe,list_hook>(last_hook,hook_ptr);
264                        return (*last_element);
265                    }
266                    const_reference back() const{
267                        const list_hook* last_hook = sent_node_.prev_;
268                        const value_type* last_element = ra::util::parent_from_member<va
       lue_type,list_hook>(last_hook,hook_ptr);
269                        return (*last_element);
270                    }
271
272                    // Erases any elements from the list, yielding an empty list.
273                    // Time complexity: Either linear or constant.
274                    void clear(){
275                        /*list_hook* current_hook = (sent_node_.prev_)->next_;
276                        list_hook* next_hook;
277                        for(size_type i=0; i<=size_; ++i){
278                            next_hook = current_hook->next_;
279                            current_hook->next_ = current_hook;
280                            current_hook->prev_ = current_hook;
281                            current_hook = next_hook;
282                        }
283                        */
284                        list_hook* itslf = (sent_node_.prev_)->next_;
285                        sent_node_.prev_ = itslf;
286                        sent_node_.next_ = itslf;
287                        size_ = size_type(0);
288                    }
289
290                    // Returns an iterator referring to the first element in the list
291                    // if the list is not empty and end() otherwise.
292                    // Time complexity: Constant.
293                    const_iterator begin() const{
294                        if(size_ == size_type(0)){
295                            return end();
296                        }
297                        else{
298                            const_iterator first_hook = sent_node_.next_;
299                            return first_hook;
300                        }
301                    }
302
303                    iterator begin(){
304                        if(size_ == size_type(0)){
```

```
305                         return end();
306                     }
307                     else{
308                         iterator first_hook = sent_node_.next_;
309                         return first_hook;
310                     }
311                 }
312
313             // Returns an iterator referring to the fictitious one-past-the-end
314             // element.
315             // Time complexity: Constant.
316             const_iterator end() const {
317                     /*const iterator last_element = ra::util::parent_from_member<
     value_type,list_hook>(last_hook,hook_ptr);
318                     const iterator end_element = last_element + 1;
319                     return end_element;*/
320                     return &sent_node_;
321             }
322             iterator end() {
323                     /*list_hook* last_hook = sent_node_.prev_;
324                     iterator last_element = ra::util::parent_from_member<value_type,
     list_hook>(last_hook,hook_ptr);
325                     iterator end_element = last_element + 1;
326                     return end_element;
327                     */
328                     return &sent_node_;
329             }
330
331         private:
332             list_hook sent_node_;
333             std::size_t size_;
334
335     };
336
337 }
338 #endif
```

```cpp
1   #include "ra/intrusive_list.hpp"
2   #include<vector>
3   #include<iostream>
4   #include<utility>
5
6   namespace ri = ra::intrusive;
7
8   struct Widget {
9       Widget(int value_) : value(value_) {}
10      int value;
11      ri::list_hook hook;
12      ri::list_hook hook2;
13  };
14
15  void print_list(ri::list<Widget, &Widget::hook>& obj){
16      for(ri::list<Widget, &Widget::hook>::list_iterator i=(obj.begin()); i!=(obj.
    end()); ++i){
17          std::cout<<(i->value)<<" ";
18      }
19      std::cout<<std::endl;
20  }
21
22  void print_list2(ri::list<Widget, &Widget::hook2>& obj){
23      for(ri::list<Widget, &Widget::hook2>::list_iterator i=(obj.begin()); i!=(obj
    .end()); ++i){
24          std::cout<<(i->value)<<" ";
25      }
26      std::cout<<std::endl;
27  }
28
29  /*void make_list(int low, int high, std::vector<Widget>& storage, ri::list<Widge
    t, &Widget::hook>& obj){
30      for(int i=high; i>=low; --i){
31          storage.push_back(Widget(i));
32      }
33      Widget* wp = storage.data();
34      ri::list<Widget, &Widget::hook>::list_iterator ip = obj.begin();
35      for(int i=0; i<(storage.size()); ++i){
36          obj.insert(ip,*wp);
37          --ip;
38          ++wp;
39      }
40  }*/
41
42  int main() {
43      using std::cout;
44      using std::endl;
45      using riw = typename ri::list<Widget, &Widget::hook>;
46      using riw2 = typename ri::list<Widget, &Widget::hook2>;
47      using itr = typename ri::list<Widget, &Widget::hook>::list_iterator;
48      using itr2 = typename ri::list<Widget, &Widget::hook2>::list_iterator;
49      std::vector<Widget> storage;
50      for(int i=9; i>=0; --i){
51          storage.push_back(Widget(i));
52      }
53      // Test default constructor
54      riw obj_A;
55      riw2 obj_AA;
56      cout<<(obj_A.size())<<endl;
57      // Test insert and begin and end and back
58      Widget* wp = storage.data();
59      itr ip = obj_A.begin();
```

```
60        itr2 ip2 = obj_AA.begin();
61        for(int i=0; i<10; ++i){
62            obj_A.insert(ip,*wp);
63            obj_AA.insert(ip2,*wp);
64            --ip;
65            --ip2;
66            ++wp;
67        }
68        cout<<(obj_A.size())<<endl;
69        cout<<((obj_A.back()).value)<<endl;
70        print_list(obj_A);
71        // Test move constructor and move assignment
72        riw obj_B(std::move(obj_A));
73        print_list(obj_B);
74        riw obj_C = std::move(obj_B);
75        print_list(obj_C);
76        // Test clear
77        obj_C.clear();
78        cout<<(obj_C.size())<<endl;
79        print_list(obj_C);
80        // Test erase
81        print_list2(obj_AA);
82        obj_AA.erase(obj_AA.begin());
83        Widget* bk = &(obj_AA.back());
84        obj_AA.erase(--itr2(bk));
85        //obj_AA.erase(--(--(obj_AA.end())));
86        cout<<(obj_AA.size())<<endl;
87        print_list2(obj_AA);
88        // Test push_back
89        Widget pbk1(7);
90        obj_A.push_back(pbk1);
91        Widget pbk2(19);
92        obj_A.push_back(pbk2);
93        print_list(obj_A);
94        // Test pop_back
95        obj_AA.pop_back();
96        obj_AA.pop_back();
97        print_list2(obj_AA);
98        // Test swap
99        riw2 obj_BB(std::move(obj_AA));
100       obj_AA.swap(obj_BB);
101       print_list2(obj_AA);
102       print_list2(obj_BB);
103
104
105       /*riw obj_D;
106       std::vector<Widget> storage1;
107       for(int i=4; i>=2; --i){
108           storage1.push_back(Widget(i));
109       }
110       Widget* wp1 = storage1.data();
111       itr ip1 = obj_D.begin();
112       for(int i=0; i<(storage1.size()); ++i){
113           obj_D.insert(ip1,*wp1);
114           --ip1;
115           ++wp1;
116       }
117       print_list(obj_D);
118       */
119
120
121
```

```
122
123         /*
124         std::vector<Widget> storage;
125         storage.push_back(Widget(42));
126         ri::list<Widget, &Widget::hook> values;
127         for (auto&& i : storage) {
128             values.push_back(i);
129         }
130         values.clear();
131         */
132     }
```