Fangshuo Li

CS302

10/29/20

HW3

“make” compiles all, “./main” to run program

This project was designed in order to create a binary search tree that stores data. The BST program I wrote organizes 100 integers ranging from 0 – 200 with no duplicates. The INTEGER\_COUNT and MAX\_RAND macros control these values. When ran, it firstly prints out the original data set before being put into the data structure. It then automatically prints out the inorder, preorder, and postorder traversals.

Log Output:

original set:

27

149

166

2

45

196

104

95

37

56

46

157

86

89

120

159

175

160

28

69

91

34

17

158

75

156

93

22

143

102

65

108

62

32

90

5

66

190

77

184

38

128

99

33

55

1

44

148

125

35

15

48

140

23

9

178

47

94

191

83

106

50

57

130

113

42

63

167

147

144

53

110

136

4

152

80

85

170

24

10

146

173

164

138

97

41

14

26

188

96

169

127

186

118

7

101

124

195

30

25

Height of Tree:12

In Order Traversal:

1

2

4

5

7

9

10

14

15

17

22

23

24

25

26

27

28

30

32

33

34

35

37

38

41

42

44

45

46

47

48

50

53

55

56

57

62

63

65

66

69

75

77

80

83

85

86

89

90

91

93

94

95

96

97

99

101

102

104

106

108

110

113

118

120

124

125

127

128

130

136

138

140

143

144

146

147

148

149

152

156

157

158

159

160

164

166

167

169

170

173

175

178

184

186

188

190

191

195

196

Pre Order Traversal:

27

2

1

17

5

4

15

9

7

10

14

22

23

24

26

25

149

45

37

28

34

32

30

33

35

38

44

42

41

104

95

56

46

55

48

47

50

53

86

69

65

62

57

63

66

75

77

83

80

85

89

91

90

93

94

102

99

97

96

101

120

108

106

113

110

118

143

128

125

124

127

140

130

136

138

148

147

144

146

166

157

156

152

159

158

160

164

196

175

167

170

169

173

190

184

178

188

186

191

195

Post Order Traversal:

1

4

7

14

10

9

15

5

25

26

24

23

22

17

2

30

33

32

35

34

28

41

42

44

38

37

47

53

50

48

55

46

57

63

62

66

65

80

85

83

77

75

69

90

94

93

91

89

86

56

96

97

101

99

102

95

106

110

118

113

108

124

127

125

138

136

130

140

128

146

144

147

148

143

120

104

45

152

156

158

164

160

159

157

169

173

170

167

178

186

188

184

195

191

190

175

196

166

149

27