CS-431 PROGRAMMING LANGUAGES LAB PROJECT README

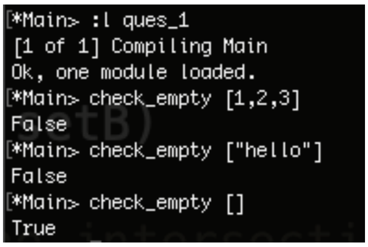
QUESTION-1 BASIC SET OPERATIONS

***NOTE** : Since it is not specified, we are taking any kind of input, the set can be a number set or a string set,etc. This is achived by using the **Ord** class as can be seen in the code.*

Instructions to run

a) *ghci*

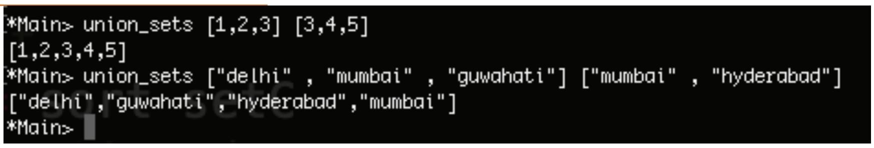
b) *:l ques_1*



```
*Main> :l ques_1
[1 of 1] Compiling Main
Ok, one module loaded.
*Main> check_empty [1,2,3]
False
*Main> check_empty ["hello"]
False
*Main> check_empty []
True
```

Check if set is empty

c) *check_empty [1,3,4]*



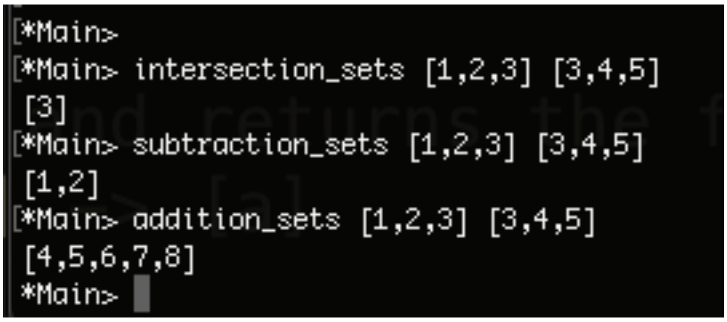
```
*Main> union_sets [1,2,3] [3,4,5]
[1,2,3,4,5]
*Main> union_sets ["delhi" , "mumbai" , "guwahati"] ["mumbai" , "hyderabad"]
["delhi","guwahati","hyderabad","mumbai"]
*Main>
```

Find Union of Sets

d) *union_sets [1,2,3] [3,4,5]*

Find Intersection of Sets

e) *intersection_sets [1,2,3] [3,4,5]*



```
*Main>
*Main> intersection_sets [1,2,3] [3,4,5]
[3]
*Main> subtraction_sets [1,2,3] [3,4,5]
[1,2]
*Main> addition_sets [1,2,3] [3,4,5]
[4,5,6,7,8]
*Main>
```

Find Subtraction of Sets

f) *subtraction_sets [1,2,3] [3,4,5]*

Find Additon of Sets

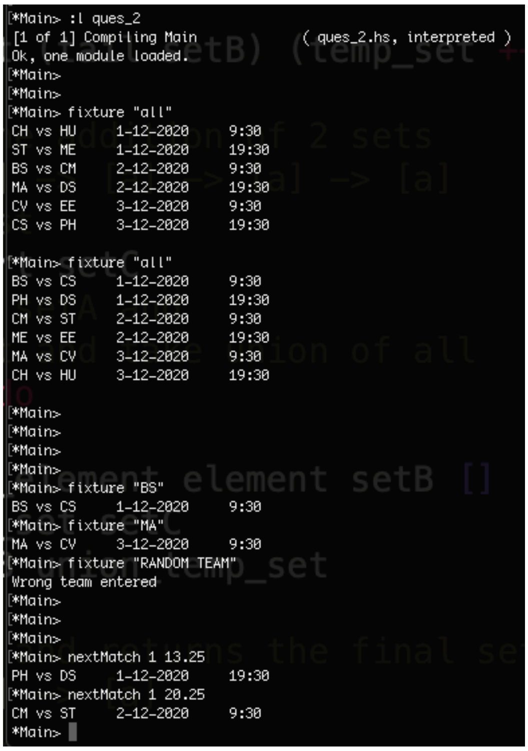
g) *additon_sets [1,2,3] [3,4,5]*

QUESTION-2 IITG FOOTBALL LEAGUE

***NOTE:** As specified in the discussion forum, **everytime** the user enters 'fixture "all"', we **generate** a **new random schedule**.*

Moreover, to avoid confusion we have stuck to the 24 hour clock format.

So instead of writing 7:30, we display 19:30.



```
*Main> :l ques_2
[1 of 1] Compiling Main          ( ques_2.hs, interpreted )
Ok, one module loaded.
*Main>
*Main>
*Main> fixture "all"
CH vs HU     1-12-2020     9:30
ST vs ME     1-12-2020     19:30
BS vs CM     2-12-2020     9:30
MA vs DS     2-12-2020     19:30
CV vs EE     3-12-2020     9:30
CS vs PH     3-12-2020     19:30

*Main> fixture "all"
BS vs CS     1-12-2020     9:30
PH vs DS     1-12-2020     19:30
CM vs ST     2-12-2020     9:30
ME vs EE     2-12-2020     19:30
MA vs CV     3-12-2020     9:30
CH vs HU     3-12-2020     19:30

*Main>
*Main>
*Main>
*Main>
*Main> fixture "BS"
BS vs CS     1-12-2020     9:30
*Main> fixture "MA"
MA vs CV     3-12-2020     9:30
*Main> fixture "RANDOM TEAM"
Wrong team entered
*Main>
*Main>
*Main>
*Main> nextMatch 1 13.25
PH vs DS     1-12-2020     19:30
*Main> nextMatch 1 20.25
CM vs ST     2-12-2020     9:30
*Main>
```

Instructions to run

a) *ghci*

b) *:l ques_2*

To display all fixtures

c) *fixture "all"*

To display fixture for a specific team

d) *fixture "BS"*

To display next fixture for a given date and time

e) *nextMatch 1 13.25*

QUESTION-3 HOUSE PLANNER

NOTE: *We have used some optimizations as given in the report to prune the search space and return the output. Still some input may take a little longer to run. I have provided 3 inputs and the time it took to run on my machine to get a rough idea.*

Instructions to run

a) *ghci*

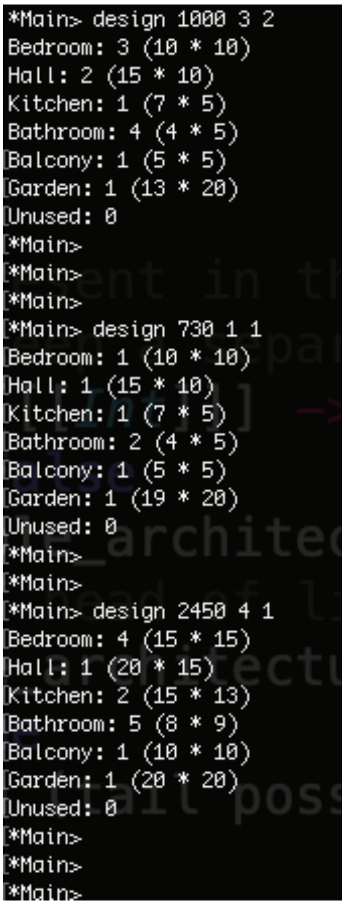
b) *:l ques_3*

Design an Architecture for a given input

c) *1) design 1000 3 2 (it took 26 seconds to execute)*

2) design 730 1 1 (it took 8 seconds to execute)

3) design 2450 4 1 (it took 55 seconds to execute)



```
*Main> design 1000 3 2
Bedroom: 3 (10 * 10)
Hall: 2 (15 * 10)
Kitchen: 1 (7 * 5)
Bathroom: 4 (4 * 5)
Balcony: 1 (5 * 5)
Garden: 1 (13 * 20)
Unused: 0
*Main>
*Main>
*Main>
*Main> design 730 1 1
Bedroom: 1 (10 * 10)
Hall: 1 (15 * 10)
Kitchen: 1 (7 * 5)
Bathroom: 2 (4 * 5)
Balcony: 1 (5 * 5)
Garden: 1 (19 * 20)
Unused: 0
*Main>
*Main>
*Main> design 2450 4 1
Bedroom: 4 (15 * 15)
Hall: 1 (20 * 15)
Kitchen: 2 (15 * 13)
Bathroom: 5 (8 * 9)
Balcony: 1 (10 * 10)
Garden: 1 (20 * 20)
Unused: 0
*Main>
*Main>
*Main>
```