Case1: Load small data file that has 1000 rows of data and search values.

- **Search by "ID"**

```
Choose search option (Example: enter 2 for last_name) :
1. id
2. last_name
3. email
4. car_model
5. job_title
6. address
7. phone_number
8. latitude
9. GPS
10. exit a program
1
Enter value to search
2
```

```
############# Searching Start #################
Searching for "2"  in BST by id
Comapared "2"  to 9 nodes
Record found for 2=> {"address":"326 Fisk Place","car":"Chevrolet","car_color":"Red","ca
r_model":"Metro","city":"Riverside","email":"cshieber1@adobe.com","favorite_movie":"Scar
let Pimpernel, The","first_name":"Clevey","id":2,"job_title":"Desktop Support Technician
","last_name":"Shieber","latitude":33.7529,"longitude":-116.0556,"pet":"Lourie, grey","p
hone_number":"(951) 2660151","stocks":["PAM","UL","AVDL","HMTV","TTEC","AIG","INTC"]}
Record search time::::::  0.006189 seconds
**************************
Searching for "2"  in LinkList by id
Comapared "2"  to 932 nodes
Record found => {"address":"326 Fisk Place","car":"Chevrolet","car_color":"Red","car_mod
el":"Metro","city":"Riverside","email":"cshieber1@adobe.com","favorite_movie":"Scarlet P
impernel, The","first_name":"Clevey","id":2,"job_title":"Desktop Support Technician","la
st_name":"Shieber","latitude":33.7529,"longitude":-116.0556,"pet":"Lourie, grey","phone_
number":"(951) 2660151","stocks":["PAM","UL","AVDL","HMTV","TTEC","AIG","INTC"]}
Record search time::::::  0.007076 seconds
############# Searching end #################
```

- **Search by "Last Name"**

```
2. last_name
3. email
4. car_model
5. job_title
6. address
7. phone_number
8. latitude
9. GPS
10. exit a program
2
Enter value to search
bayman
############# Searching Start #################
Searching for "bayman"  in BST by last_name
Comapared (bayman)  to 9 nodes
Record found for Bayman=> {"address":"218 Susan Court","car":"Chevrolet","car_color":"In
digo","car_model":"Cruze","city":"Fullerton","email":"lbaymanq@printfriendly.com","favor
ite_movie":"Eraser","first_name":"Lora","id":27,"job_title":"Geologist III","last_name":
Record search time::::::: 0.006910 seconds
***************************
Searching for "bayman"  in LinkList by last_name
Comapared "bayman"  to 44 nodes
Record found => {"address":"218 Susan Court","car":"Chevrolet","car_color":"Indigo","car
_model":"Cruze","city":"Fullerton","email":"lbaymanq@printfriendly.com","favorite_movie"
:"Eraser","first_name":"Lora","id":27,"job_title":"Geologist III","last_name":"Bayman","
latitude":33.7862,"longitude":-117.9309,"pet":"Striped skunk","phone_number":"(559) 8453
135","stocks":["RIBTW","CNA","TRIB","MOTA","STKS","SABR","WGL"]}
Record search time::::::: 0.007052 seconds
############ Searching end #################
```

- **Search by "Email"**

```
1. id
2. last_name
3. email
4. car_model
5. job_title
6. address
7. phone_number
8. latitude
9. GPS
10. exit a program
3
Enter value to search
jhutcheon
############## Searching Start ################
Searching for "jhutcheon"  in BST by email
Comapared (jhutcheon)  to 12 nodes
Record found for jhutcheon26@linkedin.com=> {"address":"19 Chive Drive","car":"Chevrolet
02341","stocks":["JASNW","GRID","IPGP","GLA","NAKD","FKU","RSO^C"]}
Record search time::::::: 0.007829 seconds
**************************
Searching for "jhutcheon"  in LinkList by email
Comapared "jhutcheon"  to 386 nodes
Record found => {"address":"19 Chive Drive","car":"Chevrolet","car_color":"Aquamarine","
car_model":"Express 2500","city":"Sacramento","email":"jhutcheon26@linkedin.com","favori
te_movie":"Dancing in the Rain (Ples v dezju)","first_name":"Jonell","id":79,"job_title"
:"Budget/Accounting Analyst III","last_name":"Hutcheon","latitude":38.6406,"longitude":-
121.444,"pet":"Shrew, mandras tree","phone_number":"(916) 6202341","stocks":["JASNW","GR
ID","IPGP","GLA","NAKD","FKU","RSO^C"]}
Record search time::::::: 0.008199 seconds
############## Searching end ################
```

- **Search by "car_model"**

```
4. car_model
5. job_title
6. address
7. phone_number
8. latitude
9. GPS
10. exit a program
4
Enter value to search
1 series
############# Searching Start #################
Searching for "1 series"  in BST by car_model
Comapared (1 series)  to 5 nodes
Record found for 1 Series=> {"address":"637 Mifflin Pass","car":"BMW","car_color":"Indig
o","car_model":"1 Series","city":"San Bernardino","email":"bkorejsl0@ca.gov","favorite_m
ovie":"Justice League: Doom ","first_name":"Bernelle","id":757,"job_title":"Director of
Sales","last_name":"Korejs","latitude":34.84,"longitude":-115.9671,"pet":"Phalarope, gre
y","phone_number":"(760) 9898569","stocks":["IFMK","CBB^B","JFR","VEAC","DSX","SPEX","CA
FD"]}
Record search time::::::: 0.007301 seconds
***************************
Searching for "1 series"  in LinkList by car_model
Comapared "1 series"  to 360 nodes
Record found => {"address":"637 Mifflin Pass","car":"BMW","car_color":"Indigo","car_mode
l":"1 Series","city":"San Bernardino","email":"bkorejsl0@ca.gov","favorite_movie":"Justi
ce League: Doom ","first_name":"Bernelle","id":757,"job_title":"Director of Sales","last
_name":"Korejs","latitude":34.84,"longitude":-115.9671,"pet":"Phalarope, grey","phone_nu
mber":"(760) 9898569","stocks":["IFMK","CBB^B","JFR","VEAC","DSX","SPEX","CAFD"]}
Record search time::::::: 0.007850 seconds
```

- **Search by "job_title"**

```
4. car_model
5. job_title
6. address
7. phone_number
8. latitude
9. GPS
10. exit a program
5
Enter value to search
social
############## Searching Start #################
Searching for "social"  in BST by job_title
Comapared (social)  to 15 nodes
Record found for Social Worker=> {"address":"11 John Wall Lane","car":"Mercedes-Benz","car_co
lor":"Blue","car_model":"CLS-Class","city":"Washington","email":"ssavell2e@jigsy.com","favori
te_movie":"Seven Swords (Chat gim)","first_name":"Sarette","id":87,"job_title":"Social Worker
","last_name":"Savell","latitude":38.896,"longitude":-77.0177,"pet":"Skunk, striped","phone_n
umber":"(202) 2025870","stocks":["CRD.B","STI.WS.A","CNA","RAVE","AON","PAM","FTRPR"]}
Record search time::::::: 0.006782 seconds
**************************
Searching for "social"  in LinkList by job_title
Comapared "social"  to 199 nodes
Record found => {"address":"11 John Wall Lane","car":"Mercedes-Benz","car_color":"Blue","car_
model":"CLS-Class","city":"Washington","email":"ssavell2e@jigsy.com","favorite_movie":"Seven
Swords (Chat gim)","first_name":"Sarette","id":87,"job_title":"Social Worker","last_name":"Sa
vell","latitude":38.896,"longitude":-77.0177,"pet":"Skunk, striped","phone_number":"(202) 202
5870","stocks":["CRD.B","STI.WS.A","CNA","RAVE","AON","PAM","FTRPR"]}
Record search time::::::: 0.006808 seconds
############ Searching end #################
```

- **Search by "phone_number"**

```
4. car_model
5. job_title
6. address
7. phone_number
8. latitude
9. GPS
10. exit a program
7
Enter value to search
(859) 76
############# Searching Start #################
Searching for "(859) 76"  in BST by phone_number
Comapared ((859) 76)  to 12 nodes
Record found for (859) 7642447=> {"address":"7 Ramsey Plaza","car":"Lexus","car_color":"Green
","car_model":"GX","city":"Lexington","email":"bboocockoh@sun.com","favorite_movie":"Bless Me
, Ultima","first_name":"Billy","id":882,"job_title":"Product Engineer","last_name":"Boocock",
"latitude":38.0283,"longitude":-84.4715,"pet":"Mallard","phone_number":"(859) 7642447","stock
s":["VVPR","ELU","TREC","TCFC","BPFHP","TEX","NWLI"]}
Record search time:::::: 0.006490 seconds
***************************
Searching for "(859) 76"  in LinkList by phone_number
Comapared "(859) 76"  to 987 nodes
Record found => {"address":"7 Ramsey Plaza","car":"Lexus","car_color":"Green","car_model":"GX
","city":"Lexington","email":"bboocockoh@sun.com","favorite_movie":"Bless Me, Ultima","first_
name":"Billy","id":882,"job_title":"Product Engineer","last_name":"Boocock","latitude":38.028
3,"longitude":-84.4715,"pet":"Mallard","phone_number":"(859) 7642447","stocks":["VVPR","ELU",
"TREC","TCFC","BPFHP","TEX","NWLI"]}
Record search time:::::: 0.008710 seconds
############ Searching end #################
```

- **Search by "Latitude"**

```
4. car_model
5. job_title
6. address
7. phone_number
8. latitude
9. GPS
10. exit a program
8
Enter value to search
37.5593
############# Searching Start ################
Searching for "37.5593"  in BST by latitude
Comapared "37.559300"  to 12 nodes
Record found for 37.559300=> {"address":"9744 Blue Bill Park Crossing","car":"Chrysler","car_
color":"Teal","car_model":"Sebring","city":"Richmond","email":"mcicchinelliqx@sun.com","favor
ite_movie":"Bikes vs Cars","first_name":"Miltie","id":970,"job_title":"Information Systems Ma
nager","last_name":"Cicchinelli","latitude":37.5593,"longitude":-77.4471,"pet":"Polecat, afri
can","phone_number":"(804) 7950846","stocks":["ALR","ACOR","BLBD","FSCFL","HTA","BG","ZAYO"]}
Record search time::::::: 0.005928 seconds
***************************
Searching for "37.5593"  in LinkList by latitude
Comapared "37.5593"  to 127 nodes
Record found => {"address":"9744 Blue Bill Park Crossing","car":"Chrysler","car_color":"Teal"
,"car_model":"Sebring","city":"Richmond","email":"mcicchinelliqx@sun.com","favorite_movie":"B
ikes vs Cars","first_name":"Miltie","id":970,"job_title":"Information Systems Manager","last_
name":"Cicchinelli","latitude":37.5593,"longitude":-77.4471,"pet":"Polecat, african","phone_n
umber":"(804) 7950846","stocks":["ALR","ACOR","BLBD","FSCFL","HTA","BG","ZAYO"]}
Record search time::::::: 0.008491 seconds
############# Searching end ################
```

- **Search by "GPS"**

```
6. address
7. phone_number
8. latitude
9. GPS
10. exit a program
9
Enter value to latitude
33.4951
Enter value to longitude
-86.8059
############# Searching Start ################
Searching for (33.495100, -86.805900) in BST by GPS
Comapared (33.495100, -86.805900)  to 20 nodes
Record found for (33.495100, -86.805900) => {"address":"43 Delladonna Circle","car":"GMC","ca
r_color":"Turquoise","car_model":"Sierra 2500","city":"Birmingham","email":"cpollak1o@youku.c
om","favorite_movie":"Duchess, The","first_name":"Clywd","id":61,"job_title":"Engineer I","la
st_name":"Pollak","latitude":33.4951,"longitude":-86.8059,"pet":"Nyala","phone_number":"(205)
 9489422","stocks":["MELR","EPR^E","RRD","LDL","SGOC","WAYN","FTSM"]}
Record search time::::::: 0.006380 seconds
***************************
Searching for (33.495100, -86.805900) in LinkList by GPS
Comapared (33.495100, -86.805900)  to 411 nodes
Record found => {"address":"43 Delladonna Circle","car":"GMC","car_color":"Turquoise","car_mo
del":"Sierra 2500","city":"Birmingham","email":"cpollak1o@youku.com","favorite_movie":"Duches
s, The","first_name":"Clywd","id":61,"job_title":"Engineer I","last_name":"Pollak","latitude"
:33.4951,"longitude":-86.8059,"pet":"Nyala","phone_number":"(205) 9489422","stocks":["MELR","
EPR^E","RRD","LDL","SGOC","WAYN","FTSM"]}
Record search time::::::: 0.009705 seconds
############ Searching end ################
```