Part A:

```
declare namespace output = "http://www.w3.org/2010/xslt-xquery-serialization";
declare option output:method "text";

declare function local:genPop()as xs:string* {
let $countries:=doc("mondial.xml")//country
for $elt in $countries
let $population := $elt/@population[1]
let $countryName := $elt/@name
return (concat(":",fn:replace($countryName," ",""), " :population", " ",
fn:replace(fn:normalize-space($population)," ",""), ".&#xa;"))



};
"&#xa;","@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .","&#xa;",
"@prefix : <http://lyle.smu.edu/cse7347/> .","&#xa;",
local:genPop()
```

N3 data:

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix : <http://lyle.smu.edu/cse7347/> .
:Albania :population 3249136.
:Andorra :population 72766.
:Austria :population 8023244.
:Belarus :population 10415973.
:Belgium :population 10170241.
:BosniaandHerzegovina :population 2656240.
:Bulgaria :population 8612757.
:Croatia :population 5004112.
:CzechRepublic :population 10321120.
:Denmark :population 5249632.
:Estonia :population 1459428.
:FaroeIslands :population 43857.
:Finland :population 5105230.
:France :population 58317448.
:Germany :population 83536112.
:Gibraltar :population 28765.
:Greece :population 10538594.
```

:Guernsey :population 62920.
:HolySee :population 840.
:Hungary :population 10002541.
:Iceland :population 270292.
:Ireland :population 3566833.
:Italy :population 57460272.
:Jersey :population 87848.
:Latvia :population 2468982.
:Liechtenstein :population 31122.
:Lithuania :population 3646041.
:Luxembourg :population 415870.
:Macedonia :population 2104035.
:Malta :population 375576.
:Man :population 73837.
:Moldova :population 4463847.
:Monaco :population 31719.
:Netherlands :population 15568034.
:Norway :population 4383807.
:Poland :population 38642564.
:Portugal :population 9865114.
:Romania :population 21657162.
:Russia :population 148178480.
:SanMarino :population 24521.
:SerbiaandMontenegro :population 10614558.
:Slovakia :population 5374362.
:Slovenia :population 1951443.
:Spain :population 39181112.
:Svalbard :population 2715.
:Sweden :population 8900954.
:Switzerland :population 7207060.
:Ukraine :population 50864008.
:UnitedKingdom :population 58489976.
:Afghanistan :population 22664136.
:Armenia :population 3463574.
:Azerbaijan :population 7676953.
:Bahrain :population 590042.
:Bangladesh :population 123062800.
:Bhutan :population 1822625.
:Brunei :population 299939.
:Burma :population 45975624.

:Cambodia :population 10861218.
:China :population 1210004992.
:Cyprus :population 744609.
:Georgia :population 5219810.
:India :population 952107712.
:Indonesia :population 206611600.
:Iran :population 66094264.
:Iraq :population 21422292.
:Israel :population 5421995.
:Japan :population 125449704.
:Jordan :population 4212152.
:Kazakstan :population 16916464.
:NorthKorea :population 23904124.
:SouthKorea :population 45482292.
:Kuwait :population 1950047.
:Kyrgyzstan :population 4529648.
:Laos :population 4975772.
:Lebanon :population 3776317.
:Macau :population 496837.
:Malaysia :population 19962892.
:Mongolia :population 2496617.
:Nepal :population 22094032.
:Oman :population 2186548.
:Pakistan :population 129275664.
:PapuaNewGuinea :population 4394537.
:Philippines :population 74480848.
:Qatar :population 547761.
:SaudiArabia :population 19409058.
:Singapore :population 3396924.
:SriLanka :population 18553074.
:Syria :population 15608648.
:Taiwan :population 21465880.
:Tajikistan :population 5916373.
:Thailand :population 58851356.
:Turkey :population 62484480.
:Turkmenistan :population 4149283.
:UnitedArabEmirates :population 3057337.
:Uzbekistan :population 23418380.
:Vietnam :population 73976976.
:Yemen :population 13483178.

:Anguilla :population 10424.
:AntiguaandBarbuda :population 65647.
:Argentina :population 34672996.
:Aruba :population 67794.
:Bahamas :population 259367.
:Barbados :population 257030.
:Belize :population 219296.
:Bolivia :population 7165257.
:Brazil :population 162661216.
:BritishVirginIslands :population 13195.
:Canada :population 28820672.
:CaymanIslands :population 34646.
:Chile :population 14333258.
:Colombia :population 36813160.
:CostaRica :population 3463083.
:Cuba :population 10951334.
:Dominica :population 82926.
:DominicanRepublic :population 8088881.
:Ecuador :population 11466291.
:ElSalvador :population 5828987.
:FrenchGuiana :population 151187.
:Grenada :population 94961.
:Guadeloupe :population 407768.
:Guatemala :population 11277614.
:Guyana :population 712091.
:Haiti :population 6731539.
:Honduras :population 5605193.
:Jamaica :population 2595275.
:Martinique :population 399151.
:Mexico :population 95772464.
:Montserrat :population 12771.
:NetherlandsAntilles :population 208968.
:Nicaragua :population 4272352.
:Panama :population 2655094.
:Paraguay :population 5504146.
:Peru :population 24523408.
:PuertoRico :population 3819023.
:SaintKittsandNevis :population 41369.
:SaintLucia :population 157862.
:SaintPierreandMiquelon :population 6809.

:SaintVincentandtheGrenadines :population 118344.
:Suriname :population 436418.
:TrinidadandTobago :population 1272385.
:TurksandCaicosIslands :population 14302.
:UnitedStates :population 266476272.
:Uruguay :population 3238952.
:Venezuela :population 21983188.
:VirginIslands :population 97120.
:AmericanSamoa :population 59566.
:Australia :population 18260864.
:Bermuda :population 62099.
:ChristmasIsland :population 813.
:CocosIslands :population 609.
:CookIslands :population 19561.
:FalklandIslands :population 2374.
:Fiji :population 782381.
:FrenchPolynesia :population 224911.
:Greenland :population 58203.
:Guam :population 156974.
:Kiribati :population 80919.
:Maldives :population 270758.
:MarshallIslands :population 58363.
:Mauritius :population 1140256.
:Micronesia :population 125377.
:Nauru :population 10273.
:NewCaledonia :population 187784.
:NewZealand :population 3547983.
:Niue :population 2174.
:NorfolkIsland :population 2209.
:NorthernMarianaIslands :population 52284.
:Palau :population 16952.
:PitcairnIslands :population 56.
:Reunion :population 679198.
:SaintHelena :population 6782.
:Seychelles :population 77575.
:SolomonIslands :population 412902.
:Tonga :population 106466.
:Tuvalu :population 10146.
:Vanuatu :population 177504.
:WallisandFutuna :population 14659.

:WesternSamoa :population 214384.
:Algeria :population 29183032.
:Angola :population 10342899.
:Benin :population 5709529.
:Botswana :population 1477630.
:BurkinaFaso :population 10623323.
:Burundi :population 5943057.
:Cameroon :population 14261557.
:CapeVerde :population 449066.
:CentralAfricanRepublic :population 3274426.
:Chad :population 6976845.
:Comoros :population 569237.
:Congo :population 2527841.
:CotedIvoire :population 14762445.
:Djibouti :population 427642.
:Egypt :population 63575108.
:EquatorialGuinea :population 431282.
:Eritrea :population 3427883.
:Ethiopia :population 57171664.
:Gabon :population 1172798.
:Ghana :population 17698272.
:Guinea :population 7411981.
:Guinea-Bissau :population 1151330.
:Kenya :population 28176686.
:Lesotho :population 1970781.
:Liberia :population 2109789.
:Libya :population 5445436.
:Madagascar :population 13670507.
:Malawi :population 9452844.
:Mali :population 9653261.
:Mauritania :population 2336048.
:Mayotte :population 100838.
:Morocco :population 29779156.
:Mozambique :population 17877928.
:Namibia :population 1677243.
:Niger :population 9113001.
:Nigeria :population 103912488.
:Rwanda :population 6853359.
:SaoTomeandPrincipe :population 144128.
:Senegal :population 9092749.

:SierraLeone :population 4793121.
:Somalia :population 9639151.
:SouthAfrica :population 41743460.
:Sudan :population 31547544.
:Swaziland :population 998730.
:Tanzania :population 29058470.
:Gambia :population 1204984.
:Togo :population 4570530.
:Tunisia :population 9019687.
:Uganda :population 20158176.
:WesternSahara :population 222631.
:Zaire :population 46498540.
:Zambia :population 9159072.
:Zimbabwe :population 11271314.

Part B

SPARQL Construct and the output

```
String queryString ="prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> " +
        "prefix : <http://lyle.smu.edu/cse7347/> " +
        "CONSTRUCT { ?x a :HighPopulationCountry }" +
        "WHERE {" +
        " ?x :population ?pop. " +
        " FILTER (?pop > 1000000000) " +
        " }";
```

Output:

```
New additions
@prefix :       <http://lyle.smu.edu/cse7347/> .
@prefix rdf:    <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

:China
     a       :HighPopulationCountry .
-- Done New additions
```

SPARQL Query and the output

```
queryString ="prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> " +
            "prefix : <http://lyle.smu.edu/cse7347/> " +
            "SELECT ?y " +
            "WHERE {" +
            " ?y rdf:type :HighPopulationCountry. " +
            " }";
```

Output:

```
@prefix :         <http://lyle.smu.edu/cse7347/> .
@prefix rdf:      <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .

:Liberia
      :population 2109789 .

:Colombia
      :population 36813160 .

:Gabon
      :population 1172798 .

:Finland
      :population 5105230 .

:Afghanistan
      :population 22664136 .

:Mexico
      :population 95772464 .

:Honduras
      :population 5605193 .

:Denmark
      :population 5249632 .

:Svalbard
      :population 2715 .

:Ecuador
      :population 11466291 .

:Cuba
      :population 10951334 .

:AntiguaandBarbuda
      :population 65647 .

:Macedonia
      :population 2104035 .

<http://www.w3.org/2000/01/rdf-schema#Literal>
```

```
        a        <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
        <http://www.w3.org/2000/01/rdf-schema#subClassOf>
                <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Literal> .

<http://www.w3.org/2000/01/rdf-schema#subClassOf>
        a        <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
        <http://www.w3.org/2000/01/rdf-schema#domain>
                <http://www.w3.org/2000/01/rdf-schema#Class> ;
        <http://www.w3.org/2000/01/rdf-schema#range>
                <http://www.w3.org/2000/01/rdf-schema#Class> .

:SolomonIslands
        :population 412902 .

:Belize
        :population 219296 .

:CostaRica
        :population 3463083 .

:Mauritania
        :population 2336048 .

rdf:type
        a        <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
        <http://www.w3.org/2000/01/rdf-schema#range>
                <http://www.w3.org/2000/01/rdf-schema#Class> .

:Egypt
        :population 63575108 .

:SaoTomeandPrincipe
        :population 144128 .

:SouthAfrica
        :population 41743460 .

:Sudan
        :population 31547544 .

:Estonia
        :population 1459428 .

:SaintKittsandNevis
        :population 41369 .

:Spain
        :population 39181112 .

:Belgium
        :population 10170241 .

:Ireland
```

```
        :population 3566833 .

:Mozambique
        :population 17877928 .

:Singapore
        :population 3396924 .

:SaintHelena
        :population 6782 .

:Mauritius
        :population 1140256 .

:Senegal
        :population 9092749 .

:Qatar
        :population 547761 .

:China
        a         :HighPopulationCountry ;
        :population 1210004992 .

:Slovakia
        :population 5374362 .

:PitcairnIslands
        :population 56 .

:SanMarino
        :population 24521 .

:Cambodia
        :population 10861218 .

:ElSalvador
        :population 5828987 .

:SaintPierreandMiquelon
        :population 6809 .

:Barbados
        :population 257030 .

<http://www.w3.org/2000/01/rdf-schema#domain>
        a         <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
        <http://www.w3.org/2000/01/rdf-schema#domain>
                rdf:Property ;
        <http://www.w3.org/2000/01/rdf-schema#range>
                <http://www.w3.org/2000/01/rdf-schema#Class> .

:Aruba
        :population 67794 .
```

```
:Chad
      :population 6976845 .

:Palau
      :population 16952 .

:Brunei
      :population 299939 .

:Malawi
      :population 9452844 .

:Kenya
      :population 28176686 .

:Nicaragua
      :population 4272352 .

:Zaire
      :population 46498540 .

:Micronesia
      :population 125377 .

:Guadeloupe
      :population 407768 .

:Haiti
      :population 6731539 .

:SaudiArabia
      :population 19409058 .

<http://www.w3.org/2000/01/rdf-schema#Class>
      a       <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
      <http://www.w3.org/2000/01/rdf-schema#subClassOf>
            <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> .

:Guam
      :population 156974 .

:Turkey
      :population 62484480 .

<http://www.w3.org/2000/01/rdf-schema#subPropertyOf>
      a       <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
      <http://www.w3.org/2000/01/rdf-schema#domain>
            rdf:Property ;
      <http://www.w3.org/2000/01/rdf-schema#range>
            rdf:Property .

:Libya
      :population 5445436 .
```

```
:Kazakstan
      :population 16916464 .

:Panama
      :population 2655094 .

:Cameroon
      :population 14261557 .

:Moldova
      :population 4463847 .

:Tanzania
      :population 29058470 .

:Guinea
      :population 7411981 .

:Gambia
      :population 1204984 .

:CapeVerde
      :population 449066 .

:Greece
      :population 10538594 .

:Nauru
      :population 10273 .

:Kiribati
      :population 80919 .

:MarshallIslands
      :population 58363 .

:Luxembourg
      :population 415870 .

:Syria
      :population 15608648 .

:Ghana
      :population 17698272 .

:UnitedStates
      :population 266476272 .

:Eritrea
      :population 3427883 .

:Sweden
      :population 8900954 .
```

```
:Uruguay
      :population 3238952 .

:Mongolia
      :population 2496617 .

:Malaysia
      :population 19962892 .

:Jamaica
      :population 2595275 .

:FrenchGuiana
      :population 151187 .

:NetherlandsAntilles
      :population 208968 .

:NorthernMarianaIslands
      :population 52284 .

:Botswana
      :population 1477630 .

:FalklandIslands
      :population 2374 .

:Canada
      :population 28820672 .

:AmericanSamoa
      :population 59566 .

:Anguilla
      :population 10424 .

:Jersey
      :population 87848 .

<http://www.w3.org/2000/01/rdf-schema#label>
      a       <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
      <http://www.w3.org/2000/01/rdf-schema#range>
            <http://www.w3.org/2000/01/rdf-schema#Literal> .

:CentralAfricanRepublic
      :population 3274426 .

:Philippines
      :population 74480848 .

:Bahamas
      :population 259367 .

:Monaco
      :population 31719 .
```

```
:Reunion
      :population 679198 .

:CzechRepublic
      :population 10321120 .

:Australia
      :population 18260864 .

:CocosIslands
      :population 609 .

:Venezuela
      :population 21983188 .

<http://www.w3.org/2000/01/rdf-schema#Container>
      a        <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
      <http://www.w3.org/2000/01/rdf-schema#subClassOf>
              <http://www.w3.org/2000/01/rdf-schema#Container> .

()    a        <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:List .

:Mayotte
      :population 100838 .

:Tuvalu
      :population 10146 .

:Laos
      :population 4975772 .

:TurksandCaicosIslands
      :population 14302 .

:Oman
      :population 2186548 .

:Norway
      :population 4383807 .

:NorthKorea
      :population 23904124 .

:Russia
      :population 148178480 .

:WesternSamoa
      :population 214384 .

:Lesotho
      :population 1970781 .

:Japan
```

```
        :population 125449704 .

:Indonesia
        :population 206611600 .

:Zimbabwe
        :population 11271314 .

:Slovenia
        :population 1951443 .

:SouthKorea
        :population 45482292 .

rdf:subject
        a         <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
        <http://www.w3.org/2000/01/rdf-schema#domain>
                  rdf:Statement ;
        <http://www.w3.org/2000/01/rdf-schema#subPropertyOf>
                  rdf:subject .

:Nigeria
        :population 103912488 .

:UnitedArabEmirates
        :population 3057337 .

:India
        :population 952107712 .

:Niger
        :population 9113001 .

:Angola
        :population 10342899 .

:ChristmasIsland
        :population 813 .

:Maldives
        :population 270758 .

:Paraguay
        :population 5504146 .

:Seychelles
        :population 77575 .

:Grenada
        :population 94961 .

:WallisandFutuna
        :population 14659 .

:Fiji
```

```
        :population 782381 .

:Bhutan
        :population 1822625 .

:Djibouti
        :population 427642 .

:Andorra
        :population 72766 .

<http://www.w3.org/2000/01/rdf-schema#seeAlso>
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
        <http://www.w3.org/2000/01/rdf-schema#subPropertyOf>
                <http://www.w3.org/2000/01/rdf-schema#seeAlso> .

:Togo
        :population 4570530 .

<http://www.w3.org/2000/01/rdf-schema#comment>
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
        <http://www.w3.org/2000/01/rdf-schema#range>
                <http://www.w3.org/2000/01/rdf-schema#Literal> .

:PapuaNewGuinea
        :population 4394537 .

:SaintVincentandtheGrenadines
        :population 118344 .

rdf:Seq
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
        <http://www.w3.org/2000/01/rdf-schema#subClassOf>
                rdf:Seq , <http://www.w3.org/2000/01/rdf-schema#Container> .

:Israel
        :population 5421995 .

:SerbiaandMontenegro
        :population 10614558 .

:Tonga
        :population 106466 .

:Italy
        :population 57460272 .

:Burundi
        :population 5943057 .

:VirginIslands
        :population 97120 .

:Albania
```

```
      :population 3249136 .

:Dominica
      :population 82926 .

:Bahrain
      :population 590042 .

:Armenia
      :population 3463574 .

:Brazil
      :population 162661216 .

:Romania
      :population 21657162 .

:Somalia
      :population 9639151 .

:Croatia
      :population 5004112 .

:Rwanda
      :population 6853359 .

:Montserrat
      :population 12771 .

:TrinidadandTobago
      :population 1272385 .

rdf:rest
      a        <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
      <http://www.w3.org/2000/01/rdf-schema#domain>
             rdf:List ;
      <http://www.w3.org/2000/01/rdf-schema#range>
             rdf:List ;
      <http://www.w3.org/2000/01/rdf-schema#subPropertyOf>
             rdf:rest .

<http://www.w3.org/2000/01/rdf-schema#range>
      a        <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
      <http://www.w3.org/2000/01/rdf-schema#domain>
             rdf:Property ;
      <http://www.w3.org/2000/01/rdf-schema#range>
             <http://www.w3.org/2000/01/rdf-schema#Class> .

:EquatorialGuinea
      :population 431282 .

:Portugal
      :population 9865114 .

:Pakistan
```

```
                :population 129275664 .

:Germany
        :population 83536112 .

:HighPopulationCountry
        a         <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> .

:Chile
        :population 14333258 .

:SaintLucia
        :population 157862 .

:DominicanRepublic
        :population 8088881 .

:Guernsey
        :population 62920 .

:WesternSahara
        :population 222631 .

:FrenchPolynesia
        :population 224911 .

:Kuwait
        :population 1950047 .

rdf:first
        a         <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
        <http://www.w3.org/2000/01/rdf-schema#domain>
                rdf:List ;
        <http://www.w3.org/2000/01/rdf-schema#subPropertyOf>
                rdf:first .

:Guyana
        :population 712091 .

:Iceland
        :population 270292 .

:NewCaledonia
        :population 187784 .

:Tajikistan
        :population 5916373 .

rdf:List
        a         <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
        <http://www.w3.org/2000/01/rdf-schema#subClassOf>
                <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:List .
```

```
<http://www.w3.org/2000/01/rdf-schema#ContainerMembershipProperty>
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
        <http://www.w3.org/2000/01/rdf-schema#subClassOf>
                <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ,
<http://www.w3.org/2000/01/rdf-schema#ContainerMembershipProperty> .

:Vanuatu
        :population 177504 .

:Austria
        :population 8023244 .

:Guinea-Bissau
        :population 1151330 .

:Azerbaijan
        :population 7676953 .

:SierraLeone
        :population 4793121 .

:Suriname
        :population 436418 .

<http://www.w3.org/2000/01/rdf-schema#Datatype>
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
        <http://www.w3.org/2000/01/rdf-schema#subClassOf>
                <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Datatype> , <http://www.w3.org/2000/01/rdf-
schema#Class> .

:Congo
        :population 2527841 .

rdf:Alt
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
        <http://www.w3.org/2000/01/rdf-schema#subClassOf>
                rdf:Alt , <http://www.w3.org/2000/01/rdf-schema#Container> .

:BritishVirginIslands
        :population 13195 .

:CookIslands
        :population 19561 .

:Man    :population 73837 .

:Netherlands
        :population 15568034 .

:Comoros
        :population 569237 .
```

```
:NewZealand
      :population 3547983 .

:Thailand
      :population 58851356 .

:Bulgaria
      :population 8612757 .

rdf:object
      a         <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
      <http://www.w3.org/2000/01/rdf-schema#domain>
            rdf:Statement ;
      <http://www.w3.org/2000/01/rdf-schema#subPropertyOf>
            rdf:object .

:Iran
      :population 66094264 .

:Lebanon
      :population 3776317 .

:Ukraine
      :population 50864008 .

:PuertoRico
      :population 3819023 .

:Uzbekistan
      :population 23418380 .

:Turkmenistan
      :population 4149283 .

:Nepal
      :population 22094032 .

:Hungary
      :population 10002541 .

:Peru
      :population 24523408 .

:BosniaandHerzegovina
      :population 2656240 .

<http://www.w3.org/2000/01/rdf-schema#Resource>
      a         <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
      <http://www.w3.org/2000/01/rdf-schema#subClassOf>
            <http://www.w3.org/2000/01/rdf-schema#Resource> .

:NorfolkIsland
      :population 2209 .
```

```
:Switzerland
      :population 7207060 .

:CotedIvoire
      :population 14762445 .

rdf:Property
      a        <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
      <http://www.w3.org/2000/01/rdf-schema#subClassOf>
            <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property .

:Vietnam
      :population 73976976 .

:Malta
      :population 375576 .

:Bolivia
      :population 7165257 .

:Swaziland
      :population 998730 .

:Madagascar
      :population 13670507 .

:Tunisia
      :population 9019687 .

:Liechtenstein
      :population 31122 .

:UnitedKingdom
      :population 58489976 .

:Mali
      :population 9653261 .

:Algeria
      :population 29183032 .

:Guatemala
      :population 11277614 .

:Burma
      :population 45975624 .

:France
      :population 58317448 .

:Gibraltar
      :population 28765 .
```

```
:SriLanka
        :population 18553074 .

<http://www.w3.org/2000/01/rdf-schema#isDefinedBy>
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
        <http://www.w3.org/2000/01/rdf-schema#subPropertyOf>
                <http://www.w3.org/2000/01/rdf-schema#isDefinedBy> ,
<http://www.w3.org/2000/01/rdf-schema#seeAlso> .

:Belarus
        :population 10415973 .

:Bermuda
        :population 62099 .

:Uganda
        :population 20158176 .

:Zambia
        :population 9159072 .

rdf:Statement
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
        <http://www.w3.org/2000/01/rdf-schema#subClassOf>
                <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Statement .

:Georgia
        :population 5219810 .

:Bangladesh
        :population 123062800 .

:Kyrgyzstan
        :population 4529648 .

:HolySee
        :population 840 .

:Yemen
        :population 13483178 .

:FaroeIslands
        :population 43857 .

:Greenland
        :population 58203 .

rdf:XMLLiteral
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Datatype> , <http://www.w3.org/2000/01/rdf-
schema#Class> .

rdf:predicate
        a       <http://www.w3.org/2000/01/rdf-schema#Resource> , rdf:Property ;
```

```
        <http://www.w3.org/2000/01/rdf-schema#domain>
                rdf:Statement ;
        <http://www.w3.org/2000/01/rdf-schema#subPropertyOf>
                rdf:predicate .

:Morocco
        :population 29779156 .

:Niue
        :population 2174 .

:Ethiopia
        :population 57171664 .

:Argentina
        :population 34672996 .

:Poland
        :population 38642564 .

:Taiwan
        :population 21465880 .

:BurkinaFaso
        :population 10623323 .

:Lithuania
        :population 3646041 .

:Benin
        :population 5709529 .

:Namibia
        :population 1677243 .

:CaymanIslands
        :population 34646 .

:Latvia
        :population 2468982 .

:Jordan
        :population 4212152 .

:Cyprus
        :population 744609 .

:Iraq
        :population 21422292 .

:Macau
        :population 496837 .

rdf:Bag
```

```
        a            <http://www.w3.org/2000/01/rdf-schema#Resource> ,
<http://www.w3.org/2000/01/rdf-schema#Class> ;
        <http://www.w3.org/2000/01/rdf-schema#subClassOf>
                rdf:Bag , <http://www.w3.org/2000/01/rdf-schema#Container> .

:Martinique
        :population 399151 .
--- RESULTS of Query ---
Solution:( ?y = <http://lyle.smu.edu/cse7347/China> )
```

Java Code:

```java
import com.hp.hpl.jena.query.QueryExecution;
import com.hp.hpl.jena.query.QueryExecutionFactory;
import com.hp.hpl.jena.query.QueryFactory;
import com.hp.hpl.jena.query.QuerySolution;
import com.hp.hpl.jena.query.ResultSet;
import com.hp.hpl.jena.rdf.model.InfModel;
import com.hp.hpl.jena.rdf.model.Model;
import com.hp.hpl.jena.rdf.model.ModelFactory;
import com.hp.hpl.jena.util.FileManager;
public class JenaConstructAndQuery {
 public static void main(String [] args) {

 // Create basic data Model from URL or file
        Model myRawModel =

FileManager.get().loadModel("file:C:/Users/Rutuja/Desktop/new.n3");


 // Create an RDFS inference model from the Raw Model
 InfModel infmodel = ModelFactory.createRDFSModel(myRawModel);

 // Use SPARQL CONSTRUCT to create a new triples in a new Model
 String queryString ="prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> " +
        "prefix : <http://lyle.smu.edu/cse7347/> " +
        "CONSTRUCT { ?x a :HighPopulationCountry }" + // gotcha: MUST be a space at
end
        "WHERE {" +
        " ?x :population ?pop. " +
        " FILTER (?pop > 1000000000) " +
        " }";


 // create a Jena CONSTRUCT query from the queryString
 com.hp.hpl.jena.query.Query query =
 QueryFactory.create(queryString);


 // create a Jena QueryExecution object that knows the query
 // and the N3 over which the query will be run
 QueryExecution qe =
```

```java
QueryExecutionFactory.create(query, infmodel);

// executing the CONSTRUCT gives us a new model with triples
// that will be used in our next Query's WHERE clause
Model newRawModel = qe.execConstruct();


// take a look at the new model
System.out.println("New additions");
newRawModel.write(System.out, "N3");
System.out.println("-- Done New additions");

// NOW, add the statements generated by the CONSTRUCT
// to the original model - expanding it with new statements
infmodel.add(newRawModel);

// look at the new expanded model – can be confusing !
infmodel.write(System.out, "N3");

// PART II : Do the QUERY

// Create a new SPARQL Query using SELECT
queryString ="prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> " +
             "prefix : <http://lyle.smu.edu/cse7347/> " +
             "SELECT ?y " + // gotcha: MUST be a space after last ?var
              "WHERE {" +
              " ?y rdf:type :HighPopulationCountry. " +
              " }";


// create a Jena query from the queryString
query = QueryFactory.create(queryString);

// create a Jena QueryExecution object that knows the query
// and the N3 over which the query will be run
qe = QueryExecutionFactory.create(query, infmodel);

// execute the query - get back a ResultSet
ResultSet results = qe.execSelect();

System.out.println("--- RESULTS of Query ---");
// iterate over the result set
while(results.hasNext()) {
QuerySolution sol = (QuerySolution)results.next();
System.out.println("Solution:" + sol.toString() );

}

}

}
```