Question 3 Answer:

1) California (location)

 file nytcounts.4k has contexts for 3648 words
[('massachusetts', 0.9295288164332424), ('parliament', 0.9267640796824512), ('pennsylvania', 0.9239399323122781), ('connecticut', 0.9099554055705925), ('texas', 0.9038719340717525), ('chicago', 0.8994570468561358), ('france', 0.8836757089231956), ('florida', 0.880151711862833), ('virginia', 0.8767641228722712), ('baghdad', 0.8727954012191499)]

Comment: This makes sense as word 'california' is mostly taken in context with other states like 'connecticut' , 'florida' and ''massachusetts''. Also Californian universities are usually taken in same context as MIT etc.

2) doctors (noun)
[('scientists', 0.9028581169286254), ('teachers', 0.8804088584394115), ('lawmakers', 0.8779545628737645), ('politicians', 0.8747627712185733), ('republicans', 0.864594901308887), ('developers', 0.8619758735456834), ('students', 0.8606768860790278), ('democrats', 0.8564889567276199), ('writers', 0.8481580128248294), ('investors', 0.837184343271327)]

Comment: This makes sense because word 'doctors' is usually taken in same context where we discuss other professions like teaching , politics, scientists, writing and investing. It would have made more sense if it was taken in the context of 'hospital', 'patients'.

3) small (adjective)
[('large', 0.9730714120109158), ('huge', 0.9665268924447087), ('rare', 0.9562215584279464), ('brief', 0.9544117676553472), ('single', 0.9515551865853668), ('lovely', 0.9491239113972088), ('wonderful', 0.9485953624656628), ('strong', 0.9457122065473019), ('terrible', 0.9442050143379094), ('tiny', 0.9433383250801194)]

Comment: This makes sense because word 'small' is usually taken in same context where we use other adjectives like large (size), huge (amount) , tiny (similar word).

4) draw (verb)

[('produce', 0.9652354086265206), ('buy', 0.9595964075596592), ('steal', 0.9558937311263933), ('gain', 0.9556156867087382), ('sell', 0.9522763619582504), ('develop', 0.951679771612688), ('hold', 0.9507338338892795), ('shoot', 0.9492683767150271), ('kill', 0.9484218144731972), ('marry', 0.9446525217292921)]

Comment: This makes relatively less sense because word 'draw' is usually taken in the context of drawing something out or drawing something on paper. Above words are less relative.

5) month

[('year', 0.9880743668544326), ('week', 0.9875768398876835), ('minute', 0.7987029711311938), ('summer', 0.7984194042727327), ('season', 0.7945143740545475), ('weekend', 0.7933101284029116), ('semester', 0.789737923619103), ('fall', 0.7529375861937413), ('night', 0.7525042325174283), ('spring', 0.7227215730033302)]

Comments: This makes really good sense as word 'month' is used in context where we usually talk about time of the year like 'year', 'fall', 'spring' or weekend of the month. This is good example that out similarity measure is working perfectly.

6) france
[('spain', 0.9772080250240731), ('germany', 0.9734351319699333), ('italy', 0.9726654695438796), ('canada', 0.9697091429921156), ('japan', 0.9678819959301299), ('britain', 0.9650006865552827), ('brazil', 0.9635791014939554), ('india', 0.9609791781950988), ('argentina', 0.9483864921195281), ('china', 0.9382039374058809)]

Comments: This makes really good sense as word 'france' is used when we talk about europian countries and union. So words like 'Germany', 'Italy', 'Canada' are closest to word 'france'.

In general this **approach** of distributional similarity makes good sense as most words here found top 10 most similar words as words that are usually used in the same context. This can be improved as there are some words like 'doctor' which could have made more sense if better similarities were found.