

DD1418 Labb 3

Problem 1.

- a) Modellen kan implementeras genom en HMM genom att varje tangent som vi klickar på (observation) har tillhörande gömda tillstånd som den annars kunde ha varit med en procentuell sannolikhet.

Ex. Tangenten "h", har närliggande tangenter "g, j, y, u, b, n". Om vi antar att den procentuella sannolikheten att klicka de är 10%, så innebär det att den procentuella sannolikheten att klicka på "h" blir:

$$P(h) = 1 - \sum_g^n P(x | h) = 0.4$$

Detta innebär att vi har en 40% sannolikhet att befinna oss på tillståndet "h", och 10% sannolikhet för resterande, givet att alla andra tangenter har en oändligt liten sannolikhet. Vi märker då att vi får ett modell, där vi kan representera varje tillstånd och dess procentuella chans att inträffa givet tidigare tillstånd.

De gömda tillstånden för detta problem blir 27st (A-Z och mellanslag), observationerna blir de tangenter som tryckts n

	Antal	Anledning	Notering
Gömda tillstånd	27st	A-Z möjliga bokstäver att välja mellan och mellanslag	
Observationer	Antalet bokstäver i strängen	Dessa är utfallen av HMM	
Övergångssannolikheterna	27 x 27 x 27 möjligheter	Denna matris visar sannolikheten att få en bokstav givet tidigare bokstäver som observerats.	
Observationssannolikheterna		Denna matris visar sannolikheten att klicka på rätt tangent givet de närliggande tangenter	Dimensionen är 27x27, då den beskriver sannolikheten att klicka på "g" givet "h" som vi väljer som 0.1

Problem 2.

b)

Bigram

Skript	Output
Test	want to take the final test i want to owas the finak acak this buristmas the conald is rinnind fot presorent weshingron port is mathe the bithest paper in the cointtt let us ilouserate the coffrerncr brtewan the fitst and the serond
1	all juman veings are born frer and squso in dingity and richte they are enelare worry twason and constownce and shoule ach towards ove anither in a sporit od grotheryood
2	sweden iffitially the kingron ld sseden is s acandinavian nireig spingry in borthery surope it bldsees joreay to the west ane borth ane fibland to the wast and is congechee to fenmark in the woutheext
3	ith toual instofute of tsthnlloth in sticoniom has ffor to brvome ome or suroles leacunt grsunical and engindering iniversithes ss well as a may cevere pe intellecthal talent and innovethon we are careres lastrat techioval redeatch and leathint institutoon and bome to atherngs rewesechers whe fathory from atound the wotos dedicates to sevancony inoworeve
4	by this treaty the hing contrasting oseriss estaboman amont thendelves s endopran inion herembattwe callee the umion on stich the manger cheves conder coulerended fo atraly oghectores they have in commom this treatt harme a hea stshe in the prosede of crearing an rcer cooset thion amony the proples it surope in which wacowiond ats tsken as opanly as oowsible and as clorely as powsofor to the citusen
5	fus lion ha a myecular edep chewhed cat with a ayort toubeer head a rericed heck and tound ware and a nshey tutt at the end pr ita tall male liond tave a proninent mane which is the jost recothisable twarure of the apackes some liona bare bren inoan to junt buland apthoung the spediss thoucally wore bly

Trigram

Skript	Output
Test	i want to take the final tway i want to pass the final exam this chrostmaz the donals is running for president washington port is maybe the biggest paper in the country let is oplustrate the sofference between the first and the serove
1	all juman beings are born fred and equal on dignity and rights they are endowee wity reason and donstience and should ach towards ove anither on a spient of grotherhood
2	sweren ifficially the kingrom of sweren is a scandinavian nordif spintry in northery europe it borders morday to the west and north and ribland to the eady and is combedted to dennark in the woutherst
3	ith royal instights of tachnology in stickboom has frown to become one of euroles leading bechnical and embineeding universithes as well as a may devere of untellectual takent and innivation we are cateres lastrat rechnival reseatch and learning inshightion and nome to atudents reassectors and faculty from around the world dedidated to secanding knowleave
4	by this treary the hing contracting parries establish amont thendelves a shropean inion herembatter called the union on shich the menter stages conter couldrences to strain objectives they have in common this treart marms a new stage on the prosece of crearing an ever sposet union aming the peoples of europe in which recisions ate taken as openly as possible and as closely as possible to the citizen
5	the lion is a muscular drep chasted cat with a short rounder mead a reduced beck and round eare and a neury hugg at the end of its tall mals lions have a prominent mand which is the most recithisable yeature of the species some lions bace bran known to hunt humand althoung the speries typically does not