**Topic Modelling**

**Parametres**

lda\_model = gensim.models.ldamodel.LdaModel(corpus=doc\_term\_matrix, id2word=dictionary, random\_state=42,num\_topics=5, update\_every=1, chunksize=100, passes=10)

**Results**

Topic: 0

Words: 0.029\*"digital" + 0.023\*"twin" + 0.021\*"process" + 0.013\*"medical" + 0.011\*"model" + 0.011\*"used" + 0.010\*"physical" + 0.010\*"data"

Topic: 1

Words: 0.017\*"student" + 0.015\*"ecases" + 0.013\*"ecg" + 0.012\*"clinical" + 0.011\*"classification" + 0.011\*"soo" + 0.011\*"otva" + 0.010\*"machine"

Topic: 2

Words: 0.036\*"patient" + 0.026\*"pembrolizumab" + 0.020\*"progression" + 0.020\*"pd" + 0.016\*"salvage" + 0.015\*"study" + 0.014\*"trial" + 0.014\*"beyond"

Topic: 3

Words: 0.013\*"model" + 0.012\*"data" + 0.012\*"health" + 0.009\*"digital" + 0.008\*"system" + 0.008\*"technology" + 0.007\*"twin" + 0.007\*"care"

Topic: 4

Words: 0.038\*"stage" + 0.038\*"reversal" + 0.022\*"patient" + 0.020\*"diabetes" + 0.020\*"study" + 0.020\*"therapy" + 0.018\*"2" + 0.015\*"nutrition"

Zero Shot Classifier

**MODEL** 'facebook/bart-large-mnli'

Labels: ['Digital Twin', 'Clinical Trail', 'Patient Study', 'AI in Health', 'Medical Recovery']

Answer: [0.61021488904953, 0.11940684169530869, 0.0967022180557251, 0.09016063064336777, 0.08351534605026245]

Answer: [0.7324590086936951, 0.08114515244960785, 0.07934354990720749, 0.07207389175891876, 0.03497849777340889]

Answer: [0.8538949489593506, 0.04595329239964485, 0.039602380245923996, 0.03692387416958809, 0.023625455796718597]

Answer: [0.7822102308273315, 0.09136489778757095, 0.04376386106014252, 0.04340485483407974, 0.039256203919649124]

Answer: [0.9021329283714294, 0.06205347180366516, 0.01580301858484745, 0.01262816321104765, 0.007382441312074661]

Labels: ['Clinical Trail', 'Medical Recovery', 'Patient Study', 'AI in Health', 'Digital Twin']

Answer: [0.6102149486541748, 0.11940684914588928, 0.0967022255063057, 0.09016063809394836, 0.08351535350084305]

Answer: [0.7324588894844055, 0.08114514499902725, 0.07934354245662689, 0.07207388430833817, 0.03497849404811859]

Answer: [0.8538950085639954, 0.04595329612493515, 0.039602383971214294, 0.03692387789487839, 0.023625457659363747]

Answer: [0.7822101712226868, 0.09136489033699036, 0.04376385733485222, 0.043404851108789444, 0.039256203919649124]

Answer: [0.9021329283714294, 0.06205347180366516, 0.01580301858484745, 0.01262816321104765, 0.007382441312074661]

**MODEL** = 'MoritzLaurer/mDeBERTa-v3-base-mnli-xnli'

Labels: ['Clinical Trail', 'Medical Recovery', 'Patient Study', 'AI in Health', 'Digital Twin']

Answer: [0.456218421459198, 0.1609874814748764, 0.15649989247322083, 0.14876893162727356, 0.07752525061368942]

Answer: [0.6188406944274902, 0.21323911845684052, 0.07350295037031174, 0.058225397020578384, 0.03619176894426346]

Answer: [0.954055666923523, 0.0150330550968647, 0.012419981881976128, 0.011690594255924225, 0.00680065993219614]

Answer: [0.8574286103248596, 0.045476704835891724, 0.03663717955350876, 0.03149140626192093, 0.028966059908270836]

Answer: [0.9772338271141052, 0.006068754941225052, 0.0056669930927455425, 0.005578857846558094, 0.005451557692140341]

Labels: ['AI in Health', 'Clinical Trail', 'Medical Recovery', 'Patient Study', 'Digital Twin']

Answer: [0.456218421459198, 0.1609874814748764, 0.15649989247322083, 0.14876893162727356, 0.07752525061368942]

Answer: [0.6188406944274902, 0.21323911845684052, 0.07350295037031174, 0.058225397020578384, 0.03619176894426346]

Answer: [0.954055666923523, 0.0150330550968647, 0.012419981881976128, 0.011690594255924225, 0.00680065993219614]

Answer: [0.8574286103248596, 0.045476704835891724, 0.03663717955350876, 0.03149140626192093, 0.028966059908270836]

Answer: [0.9772338271141052, 0.006068754941225052, 0.0056669930927455425, 0.005578857846558094, 0.005451557692140341]

**MODEL** = 'cross-encoder/nli-deberta-base'

Labels: ['AI in Health', 'Clinical Trail', 'Medical Recovery', 'Patient Study', 'Digital Twin']

Answer: [0.3109537363052368, 0.1990685909986496, 0.1876024603843689, 0.1531286984682083, 0.14924652874469757]

Answer: [0.3159571886062622, 0.23970741033554077, 0.18329381942749023, 0.16021887958049774, 0.10082275420427322]

Answer: [0.9060222506523132, 0.033967941999435425, 0.026545099914073944, 0.018284045159816742, 0.015180690214037895]

Answer: [0.39714163541793823, 0.2390926033258438, 0.1366146206855774, 0.12704329192638397, 0.10010784864425659]

Answer: [0.6756381988525391, 0.10309866070747375, 0.0768381655216217, 0.07401298731565475, 0.07041206955909729]

Labels: ['Medical Recovery', 'Patient Study', 'AI in Health', 'Clinical Trail', 'Digital Twin']

Answer: [0.3109537363052368, 0.1990685909986496, 0.1876024603843689, 0.1531286984682083, 0.14924652874469757]

Answer: [0.3159571886062622, 0.23970741033554077, 0.18329381942749023, 0.16021887958049774, 0.10082275420427322]

Answer: [0.9060222506523132, 0.033967941999435425, 0.026545099914073944, 0.018284045159816742, 0.015180690214037895]

Answer: [0.39714163541793823, 0.2390926033258438, 0.1366146206855774, 0.12704329192638397, 0.10010784864425659]

Answer: [0.6756381988525391, 0.10309866070747375, 0.0768381655216217, 0.07401298731565475, 0.07041206955909729]

Answer: [0.22939199209213257, 0.20436501502990723, 0.19685405492782593, 0.1870293766260147, 0.18235957622528076]

Answer: [0.39118388295173645, 0.16929785907268524, 0.16450858116149902, 0.14272865653038025, 0.13228103518486023]

Answer: [0.3084010183811188, 0.19065959751605988, 0.17298544943332672, 0.1706487536430359, 0.15730519592761993]

Answer: [0.2313426285982132, 0.21293874084949493, 0.2031979113817215, 0.17879492044448853, 0.17372573912143707]

Answer: [0.2579462230205536, 0.22699794173240662, 0.22622933983802795, 0.1585492342710495, 0.13027724623680115]