任务二：为医疗学术界提供数据服务(隐私数据保护)

数据脱敏：请现使用数据脱敏的相关技术，将个人基础信息进行脱敏处理

> 使用*遮盖敏感信息中间值的方式进行数据脱敏

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住院ID,姓名,身份证号,年龄,身高(cm),体重(kg),性别,住址,入院日期,出院日期,诊断结果,科室,
IP00001,张**,4302**********8118,29,175,70,男,******,2023-06-10,2023-06-20,肺炎,内
IP00002,李*,4302**********7118,36,180,80,男,******,2023-06-11,2023-06-21,阑尾炎,外
IP00003,王*,4302**********6118,30,160,55,女,******,2023-06-12,2023-06-22,急性肠炎,
IP00004,刘*,4302**********2218,42,178,75,男,******,2023-06-13,2023-06-23,高血压,内
IP00005,陈*,4302**********6118,48,165,60,女,******,2023-06-14,2023-06-24,心脏病,心
IP00006,赵*,4302**********3118,34,182,85,男,******,2023-06-15,2023-06-25,糖尿病,内
IP00007,杨*,4302**********2118,34,167,62,女,******,2023-06-16,2023-06-26,肝炎,肝病
IP00008,吴*,4302**********1118,75,170,68,男,******,2023-06-17,2023-06-27,哮喘,内科
IP00009,周*,4302**********5118,34,163,54,女,******,2023-06-18,2023-06-28,慢性支气
IP00010,郑*,4302**********1118,34,176,78,男,******,2023-06-19,2023-06-29,肺结核,内
IP00011,冯*,4302**********5118,47,168,63,女,******,2023-06-20,2023-06-30,肺炎,内科
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数据匿名：KACA算法的k-匿名技术将数据进行进一步处理

> 使用KACA算法进行k-匿名技术，使用年龄,身高(cm),体重(kg),性别,住址作为准标识符

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住院ID,姓名,身份证号,年龄,身高(cm),体重(kg),性别,住址,入院日期,出院日期,诊断结果,科室,主治医生ID,主治医生姓名,医
IP00001,张**,4302**********8118,[29.0-34.0],[173.0-175.0],[70.0-73.0],男,******,2023-06-10,2023-06-20,肺炎
IP00002,李*,4302**********7118,[33.0-37.0],[178.0-181.0],[77.0-80.0],男,******,2023-06-11,2023-06-21,阑尾
IP00003,王*,4302**********6118,[27.0-30.0],[159.0-161.0],[50.0-55.0],女,******,2023-06-12,2023-06-22,急性
IP00004,刘*,4302**********2218,[39.0-42.0],[175.0-178.0],[75.0-78.0],男,******,2023-06-13,2023-06-23,高血
IP00005,陈*,4302**********6118,48,165,60,女,******,2023-06-14,2023-06-24,心脏病,心内科,D001,王萧,7000.0
IP00006,赵*,4302**********3118,[31.0-34.0],[179.0-183.0],[80.0-86.0],男,******,2023-06-15,2023-06-25,糖尿
IP00007,杨*,4302**********2118,34,167,62,女,******,2023-06-16,2023-06-26,肝炎,肝病科,D001,王萧,5800.0
IP00008,吴*,4302**********1118,75,170,68,男,******,2023-06-17,2023-06-27,哮喘,内科,D002,张伟,6500.0
IP00009,周*,4302**********5118,[34.0-36.0],[163.0-165.0],[54.0-55.0],女,******,2023-06-18,2023-06-28,慢性
IP00010,郑*,4302**********1118,[32.0-35.0],[175.0-179.0],[74.0-80.0],男,******,2023-06-19,2023-06-29,肺结
IP00011,冯*,4302**********5118,47,168,63,女,******,2023-06-20,2023-06-30,肺炎,内科,D001,王萧,5000.0
IP00012,宋*,4302**********2118,[33.0-37.0],[178.0-181.0],[77.0-80.0],男,******,2023-06-21,2023-07-01,阑尾
IP00013,丁*,4302**********0118,65,161,52,女,******,2023-06-22,2023-07-02,急性肠炎,内科,D001,王萧,4500.0
IP00014,崔*,4302**********8118,[31.0-34.0],[179.0-183.0],[80.0-86.0],男,******,2023-06-23,2023-07-03,高血
IP00015,潘*,4302**********8118,[28.0-30.0],[164.0-167.0],[54.0-59.0],女,******,2023-06-24,2023-07-04,心脏
IP00016,何*,4302**********1118,[25.0-25.0],[162.0-165.0],[55.0-57.0],女,******,2023-06-25,2023-07-05,糖尿
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(拓展要求)数据扰乱：使用差分隐私算法进一步将个人信息加密

> 使用差分隐私算法，加入噪声，对数据进行扰乱，加密个人信息

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住院ID,姓名,身份证号,年龄,身高(cm),体重(kg),性别,住址,入院日期,出院日期,诊断结果,科室,主治医生ID,主治医生姓名,医
IP00001,张**,4302**********8118,29,172.87480276878503,69.59098908317335,男,******,2023-06-10,2023-06-20,肝
IP00002,李*,4302**********7118,33,177.75342248012038,76.74909242167092,男,******,2023-06-11,2023-06-21,阑
IP00003,王*,4302**********6118,26,158.98872142974307,49.84599440656399,女,******,2023-06-12,2023-06-22,急
IP00004,刘*,4302**********2218,38,174.75642738544812,75.0508343994527,男,******,2023-06-13,2023-06-23,高
IP00005,陈*,4302**********6118,50,164.64267326034832,59.577871157135846,男,******,2023-06-14,2023-06-24,
IP00006,赵*,4302**********3118,31,179.31099054375588,79.86904720153636,男,******,2023-06-15,2023-06-25,糖
IP00007,杨*,4302**********2118,33,166.8993797299656,62.11970744551371,男,******,2023-06-16,2023-06-26,肝
IP00008,吴*,4302**********1118,74,170.04282105214327,68.15081198363254,男,******,2023-06-17,2023-06-27,哮
IP00009,周*,4302**********5118,35,162.49043613189477,54.315424717573876,男,******,2023-06-18,2023-06-28,
IP00010,郑*,4302**********1118,38,174.59893033527715,74.63102254693123,女,******,2023-06-19,2023-06-29,慢
IP00011,冯*,4302**********5118,50,167.78249081772282,63.03253001125439,男,******,2023-06-20,2023-06-30,肺
IP00012,宋*,4302**********2118,33,177.881636214567,76.9497506672028,男,******,2023-06-21,2023-07-01,阑尾
IP00013,丁*,4302**********0118,66,160.64731481039195,51.07350746410232,女,******,2023-06-22,2023-07-02,肺
IP00014,崔*,4302**********8118,30,178.08369772451388,80.4474341302035,男,******,2023-06-23,2023-07-03,高
IP00015,潘*,4302**********8118,28,164.01777049904283,53.89757006803519,男,******,2023-06-24,2023-07-04,高
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