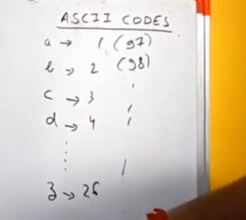
Efficient approach:

The average and best-case running time of the Rabin-Karp algorithm is O(n+m), but its worst-case time is O(nm). Worst case of Rabin-Karp algorithm occurs when all characters of pattern and text are same as the hash values of all the substrings of txt[] match with hash value of pat[]. For example pat[] = “AAA” and txt[] = “AAAAAAA”.

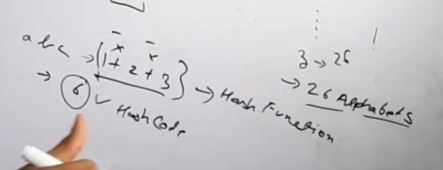
![Text, letter

Description automatically generated](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAeAB4AAD/4RDcRXhpZgAATU0AKgAAAAgABAE7AAIAAAAGAAAISodpAAQAAAABAAAIUJydAAEAAAAMAAAQyOocAAcAAAgMAAAAPgAAAAAc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAGFkbWluAAAFkAMAAgAAABQAABCekAQAAgAAABQAABCykpEAAgAAAAM3NQAAkpIAAgAAAAM3NQAA6hwABwAACAwAAAiSAAAAABzqAAAACAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAMjAyMjowNDoyMSAwNDozMDowNAAyMDIyOjA0OjIxIDA0OjMwOjA0AAAAYQBkAG0AaQBuAAAA/+ELGGh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC8APD94cGFja2V0IGJlZ2luPSfvu78nIGlkPSdXNU0wTXBDZWhpSHpyZVN6TlRjemtjOWQnPz4NCjx4OnhtcG1ldGEgeG1sbnM6eD0iYWRvYmU6bnM6bWV0YS8iPjxyZGY6UkRGIHhtbG5zOnJkZj0iaHR0cDovL3d3dy53My5vcmcvMTk5OS8wMi8yMi1yZGYtc3ludGF4LW5zIyI+PHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9InV1aWQ6ZmFmNWJkZDUtYmEzZC0xMWRhLWFkMzEtZDMzZDc1MTgyZjFiIiB4bWxuczpkYz0iaHR0cDovL3B1cmwub3JnL2RjL2VsZW1lbnRzLzEuMS8iLz48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOnhtcD0iaHR0cDovL25zLmFkb2JlLmNvbS94YXAvMS4wLyI+PHhtcDpDcmVhdGVEYXRlPjIwMjItMDQtMjFUMDQ6MzA6MDQuNzQ1PC94bXA6Q3JlYXRlRGF0ZT48L3JkZjpEZXNjcmlwdGlvbj48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOmRjPSJodHRwOi8vcHVybC5vcmcvZGMvZWxlbWVudHMvMS4xLyI+PGRjOmNyZWF0b3I+PHJkZjpTZXEgeG1sbnM6cmRmPSJodHRwOi8vd3d3LnczLm9yZy8xOTk5LzAyLzIyLXJkZi1zeW50YXgtbnMjIj48cmRmOmxpPmFkbWluPC9yZGY6bGk+PC9yZGY6U2VxPg0KCQkJPC9kYzpjcmVhdG9yPjwvcmRmOkRlc2NyaXB0aW9uPjwvcmRmOlJERj48L3g6eG1wbWV0YT4NCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgPD94cGFja2V0IGVuZD0ndyc/Pv/bAEMABwUFBgUEBwYFBggHBwgKEQsKCQkKFQ8QDBEYFRoZGBUYFxseJyEbHSUdFxgiLiIlKCkrLCsaIC8zLyoyJyorKv/bAEMBBwgICgkKFAsLFCocGBwqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKv/AABEIAMMBAQMBIgACEQEDEQH/xAAfAAABBQEBAQEBAQAAAAAAAAAAAQIDBAUGBwgJCgv/xAC1EAACAQMDAgQDBQUEBAAAAX0BAgMABBEFEiExQQYTUWEHInEUMoGRoQgjQrHBFVLR8CQzYnKCCQoWFxgZGiUmJygpKjQ1Njc4OTpDREVGR0hJSlNUVVZXWFlaY2RlZmdoaWpzdHV2d3h5eoOEhYaHiImKkpOUlZaXmJmaoqOkpaanqKmqsrO0tba3uLm6wsPExcbHyMnK0tPU1dbX2Nna4eLj5OXm5+jp6vHy8/T19vf4+fr/xAAfAQADAQEBAQEBAQEBAAAAAAAAAQIDBAUGBwgJCgv/xAC1EQACAQIEBAMEBwUEBAABAncAAQIDEQQFITEGEkFRB2FxEyIygQgUQpGhscEJIzNS8BVictEKFiQ04SXxFxgZGiYnKCkqNTY3ODk6Q0RFRkdISUpTVFVWV1hZWmNkZWZnaGlqc3R1dnd4eXqCg4SFhoeIiYqSk5SVlpeYmZqio6Slpqeoqaqys7S1tre4ubrCw8TFxsfIycrS09TV1tfY2dri4+Tl5ufo6ery8/T19vf4+fr/2gAMAwEAAhEDEQA/APRRTqAKWqEJgUYpw+bOOcUYoATFFOxSEGmAqin1A9xDbsBcTRxE9A7gZ/OpQ4cBoyGU9CDkGgY7mlHSlAoxUgIRQBzTgKXFACUYpaAKAFFPApoFSCmAUGilxSASlFGKcBQACnAUBaWmAAU4Ugp1ABRS0lACUopcUoWgBAKcBS7aWmAnNFLRQAlFLRSGYQFLnBpRQV5piOK1fQ/Ez+Mo59K1OG206c+a0ZUkB1GPm+tdZYjUFiZdUkt5ZM8NApUY+hq0BxQFNAhy9KjuvO+yTfZcef5beXu6bscVIBihnESNIRkIpYgd8UAchbaXo1lqt4NZWG6FvDG1xeXTZxK/VRngVb0+TSo/EEEHhuTfG4Y3McRLRKMcH2OfSibS8+Cb2W8jElzcv9tdXGeQQQv4AYrUvNTsNC02G4aLy0m2hI4I8s5I7KOtIDSzTgM1DY3MOoWqT2zEo2RyMEEdQR2Nctpt5deI/iHNNbTyJpekFoCqnCyyYwc+uKBnXiiudsrvUL/XkuftLLbPJJHHaqONi8F2PrmuiBoAKcBRmnAikADpTgKSnUAAFOxSCloAMU4Ck704UwFoxS0UAAFLQKKAFFLikAp2DQAlOHSjFLimIKKMUUDDFLRRQAUUUUgMQUvNAHzU6gBKWkxTsUwEopwFGKQDWUSIyOMqwKkeorM1ayvBPp95pcEdxJZbgIZG2gggDg9iMVrAUtIDn5LbxBDpK2OlRW8V5OryTXkj5SJmJOAvUmo9CvNN8P8Ah+2soyZLxRmWGNcyPKfvEj610ooCKHMgjQOerbRk/jTQjD8K6dPZxXb3ybLmSdyFJzsjJyoH51V1rxUun6wlsul3V3FA2ZZoSAEIHJOeoGea6bqeahksLee0ntjGFW4D7yBzlupzQBny+JdOi8QQaP8AvWuZx8pVCUU7d2C3ritgDFcrBoNtH8QYZBcSXEltZmSUFuBJwoYj1211vWgZR1O9azlsYYVV5bucIAxxhQMsfypbTU4rzVL6zgXclntV5QeC5Gdo+gqjfaXb634pSDUEaSC0tNyqGK/O565HsKp6UYvDfh3yrCzV5p9QljSNpNoyST8zH2xQB1ApXdV27mA3HaM9zWM3iW0WKSKDbc6nG4iazifcTJjoD6e9Kt4ms3GkFYzF80k0kRPKMgxtP0JpAbIp9A5565paYBSjpWXrGtppM1pbraXF3c3hIijhXrjGck9Ooqzp1zd3cbm806WxKn5RI6tu/KgC3SihRS4oABT6QU6mIKKKKQBRRijFABRS0UAJRS0UAYoHNOApRQOKBnBeL/GGnaVr+mTf2uhs1l2XlvG2WUjJBwPyP4V12javBrulpf2iusTngOMGs7UPB9hqOswajeQxzvG5whQBVQgg/U55zW9DBDbxCK3iSJB/CgwKBDqUkKpY9AMmkrD8X61FpOlR27yeXJqDeQj4OEU/eY/QGgDbgmjubaOeBw0ci7lb1FPPBrjhrx1DW9F0Pwv5n9nx/NcXZQgMqD7q59+9dowBY4IOPSgBKcKiklit4HnnkVIowWdifuio7C9XUbGO7ijkjjk5USDBI9cUDLWKZN5gtpfIwJdh8snoGxxTxQTSAwvDGiNps97d3Ebi4uiod5Gyz4HJP4npW/ikHPWngUARLCkdw86j53ADH1A6fzqGTTLSeCaC4hWaGeTzGRum71HpVvFPApgZVp4c0nTZZJ9Ks47O6kGPtCDLD86zR4NMrsbrVrgl7gyuYgI8qwAZePXFdPgUuBQBR0ewOlaallvMiQswjZmJOzOQCT6Dir4pMU6gDI1O0lvPEFn5Fw1sYraQrKqhtpJHrVi3tr6wt7me51F9QZYmZI2jVeQM9qv7QTnvjrT1+XpQBnWusQ3jWMcJV5LiEyyBGB8oAd6h0zxLpOqzGC3vI1uRI0Zgc4fK9eKu2enWWnTTS2VrHDJO26RlHLGqUvhzTxcfareBIrs3QuWmCjcT3GfTFAF7+0LMaodN+0KbwJ5hiHUL6n0pupXpsIYNkZmmnmWJI1756n8BzVO40y7g12TVtKkjLXIVbm3m4DAcBgRyDUOteHJtX1qwv4NTuNPe2jYfuiCNxxjgjnvTA27m4htfL8+QJ5jhFz3Y9qkFYOmC+s9Jur/XZ2v2t3keAGIKwVeM4Hc4qt4c8ZnWdI1LU9Ssjp9vZPgPv3h1xn8+aBHUUVnaJr1h4gsvtOmyl1HDK6lWQ+hBrQpDFooooAKKKKAMilxRRQAhFLS0negAxTGtLeS8W4miWR0TYu8ZCipKcKAM97SWTWrqaP8Ac5sxFbuo4RiTn+lZXhiybwpaXEGvXsStcz745TISp4APJ6etdOKjmt4rmBobqJJom6o65BoA4MwxLoenTWFjcajdaheMLpYpCfNVSSc5OAMgV2ukaiusaRFeJA1uGJUxMeUKnBFWbSCGyhSG1hSGKPO1EXAXPoKis7KKwjkjtwQjytJjPQnk4oAshcnFY11rN02tHS9FsRdyQ4NzPI22OLP8Oe7e1bQ4NUdMtprTUb9XjHlXExnWUHqSBwfpQBe54yAD3xS5rko9e1ubxg9j5QWFZ/LEAtm/1f8Az0MnSna54x1Cx1yXTtMsLaaSN1jWKaUrJKW7qMfdHrRYR0v9oW39qjTlfdc+X5jKoztX1J7ZqyTg4rldUuZPCOg/bpZYTqmo3CpLdSKSiEgnGBztHQCtDw1q9zqWgx3WrqsUrSmIMEKCTnggHkZoA3KWkpRQMKWkpwpAKKcOlNFOB4pgBFNK07IozmgBmKXHvTsUtACAnvyPQ96i+y232f7N9njEO7cYwoCk5znH1qbFIRzQBktLJpWr3crWc1xHfSKyvbpnYQoXDDsOOtawPPpRyKTBzmmA7NLSUtIAooooAyaD93J4x60tYnjHUJtO8MXT21mbx5FKeWrYbnuPcUAa6SJIzCN1YodrBTnB9Kkrh/hnJ4iGkuuv6ekUcrGeO4D/ADOW55H4/pXc0AApwFNqOa6gtZII532vcPsjGOpxmgCxRSZAYrkZHOKWkAtKBSU4dKAENApacKAELNnqajMEL3C3DwxmdRhZSg3AfXrUopaYFe9s7fUbX7PexCWPcGAPYjoRVjqoU8gdM84opwoAQdKcKKBSAWlxSUtACiiinDpTAaaVetKaQdaAHUUUgpgOopKWkAhopaSgAoopDQAtFJRTAzcU2aIS28kR4EiFSfTIxUmKMUAQ28ItrWKBfuxoEH4DFTAcUYopAAHzVz2tTaiPFmm/2Vp6XwtoJJJQ8ojCFsKDk/Q10WKQKFfcB8x4Jx2oAwNBbUp/EmsS6vDHBIqwpHHHJvCrgnr610GeawNT0zU5NC1Uaa+2/u7gMpD7SYxgYDdjgVgJ4h1bR9Fg0PV4ZLbV5mMMF3KwMQXsxk6EgUAd7NNHbW7TXDiONPvMe1SLyOK46716E+GNAl1eVcXFwBMVG7zfLz90d8kCuo0vUrbWLEXVkX8veUIdSrKR1BB6GgC3gmgGsHxNd6vBd6Xa6AsUlzNK7ukrbVKKORn8RWnp02oy2zHVrOK0mBwFil3gj1zQBcHWnUwGl3UAOpaSjNIBwoFIKWgBaKKKACnKaTFKKAH0mKAc0tMAooooAKBRRQAtJ3paSgBcUYpM0ZoAXFFJmigDPFLSClNIApKWigAoIzSiigBoU+tR3Vpb30BhvYI54j1SRQRU1KKAIo7W2iSFEtoglv8A6ldgxH9PSktLWOySRIcjzZnmfPdmOTU1GKAOf1bTJdW8XQPDeXNl9htOJID95nbpzx0Fa2Lmz0SZjM15cQwu4Z1wXIBI4FWh1JwMngnFOUlTxTAz9N1e01AWsUUySXEsIkdYznZ6g+lV7LxXpV/rU+lLKYryCVoSjqQGYf3W6HjtWhbWNrZyyyWltFC8xzIyIAWPvVe80OwurW4jEAjlml8/zk4ZZP749+KANEuokEZIDkZC55P4VS1e+lsbeAWyB7i4uEhRT0wep/ACse90eePxhYayyNeKYlglKkhoWGcOBnoc81e13Rv7ZvtM3zTQx20jyGSF9rKduBQBrfaEN4bfDbwm/O3jH1qWucn1LU9B8D3F3IjXl5buwXzurLvwCce2Kis/F88vhGfXWslljhlUOsZP+rwNzD1wTQB1OaKoaTrFnrln9r04yeWG2sJUKMp9CD0q/QAuaUUw04UAPFLSA0tABRRRQAUUlLTEFGaKQ0AGaM0UmaBi0UmaKAKVAG5gKKjnt47mBoZt21h/CcH86kCjDrltcaumnxK5lIl35/g8tgpz9Sa068/g8L6jH4/1CTRdRngtVjjS4nmO9iSMlV9D05rvlXZGq7i20Abm6mmA6jGaQVX1MXDaPeJYsUujA/lEdQ2O1IC1iisLwxp1nbWKXljPdSmeMCUXEpfDjr16HNbh4xuIGemT1pgOopuCDzS0gHCigUo60wEop9FADQcGkNKOtOoAZnKlSMgjBBHWhUiSEQrEgixjYFGPyp9GM0AVobUWrTNakA3Fx50u4dsYIH5VbzmkxQKAFpw6U2nqcCgAFPpuaAc0wHUUhOBSCkIdRTaKYCmiikoGLTKdTaACiiikBUHNLTRS5pARpCkM88sYw9wQ0nPUgYH6VIaKM0AAqve2huQjxTPBPEcxyJ2+o7j2qxml60AZml2F5aXty9zJA0U2GxEpXL92I7ZrldVtbnWvEmrsdIub+KArBaSJdeWkLhck4yOcmu9ziq1lbC0jlUHJlmaViB3JoAytR1ifQ1tTftvMliVUAZ33IPAz7g/pUuq67d6Y0EMekzX0xt/OuFgYDyh34P41rmONypkRX2ncu5c4PrUUdnbxXNzOseZLriViclh6fSgAtNRt7ixsrkt5YvVDQo/BYkZxViJ2wqTNGsxGSitWDZ+FhbavZ3b6jPNFYbha27Y2xhhyPf2qpJol8fHK3qWYdWuVmF95uNkQXBj20wOtGTSMGXrXKi81e602/sZJHs7lYXggmkG0yzliRt/4CP1rR8IlT4SssXE9xIFIla4fc4cHDAn2NMDaApCTmlHJrB/4SOyg8WXtjf38VvFbwx4D8ZY5J/TFIDeHTmlFZ2i6r/a2lRX23bHPK6xbeQVDEA/iBVmG9iuLy6t4dxa1cJIccZIzgH6EUAWaKbmnCkAtLSUtMApQcUlFADic0ZptLQAuaUU3NKtMB1IelLSYoATNJS4oxQAlFLiigRSpaSipGLRijNLQAmKWiigANJilooAMUmKdSd6AFFKM9jigUopgVtS06DVrP7NehmQMGVkYqyH1BHQ0unafb6Xp8dnZoUhjzjLEkk9SSepq1RTABkVXh023Sa7mlijlkuZN5LoDgYwBzVmlFIDB0O3u7N9JSMMtotvJFPFjASQNkHH5iqF3p3iSz0vVptJv7eOa5upJo4poxuxnop+g6V1tV9Q0+z1W1NtqMCzxZyASQVPqCKAMzwm9zcaDFcXmpHUHkJJcoFKHoVIHcGtusvRPD1l4dtZLbSvMWGSUyssrl8E+ma1KAHUUgpaACiiigApaSigApymm0ooAUmkpDS9qADNO3CmUUAP3CimUUwKYOaWiipAb0NP7UzPzU6gBTS0lLQAUhpaQ0AGaUUmKWgBwpwpgpRTAfS0wU6mA6ikFGaQCmkFLSGgBaKTNLQAClpKUUAKKKKDQAUUmaKAClFFJmgBaKTNGaAFpKTNLQAUUUUAVaKKKQDD96njpRRQAtAoooAWg0UUANzS0UUwFFA60UUgHUuaKKYD6KKKYBSUUUgCloopgLRRRSAM0UUUAFFFFABRRRQAGkoooAKWiigAooooEf//Z)

These concepts will be used.

 how used

Hash function is used to generate hash code.



Search string given use it to create hash key. abc is search key here.

See for string given aaabbabcd.

See fro aaa=1+1+1=3

Is 3 equal to 6 no.

aab->here a removed and b added=1+1+2=4

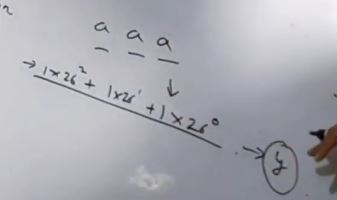
4 not equal to 6.here in code minus a value and add b value.

Now go to index 5 here abc given -6 equal to 6 now check for every char is it same or not.as it might be pattern.eg-bbb this is also 6.

Here we see that abc and bbb are collision which can also be known as spurious hits.

Also rolling hash function as from previous hash value we create new hash value.

In code the asci value will be taken but in video taken 1 ……....26 as easier to understand.



Like this solve.spurious hit min with this formulae.

![Text

Description automatically generated](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAeAB4AAD/4RDcRXhpZgAATU0AKgAAAAgABAE7AAIAAAAGAAAISodpAAQAAAABAAAIUJydAAEAAAAMAAAQyOocAAcAAAgMAAAAPgAAAAAc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAGFkbWluAAAFkAMAAgAAABQAABCekAQAAgAAABQAABCykpEAAgAAAAMyNwAAkpIAAgAAAAMyNwAA6hwABwAACAwAAAiSAAAAABzqAAAACAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAMjAyMjowNDoyMSAwNDo1Mzo1NQAyMDIyOjA0OjIxIDA0OjUzOjU1AAAAYQBkAG0AaQBuAAAA/+ELGGh0dHA6Ly9ucy5hZG9iZS5jb20veGFwLzEuMC8APD94cGFja2V0IGJlZ2luPSfvu78nIGlkPSdXNU0wTXBDZWhpSHpyZVN6TlRjemtjOWQnPz4NCjx4OnhtcG1ldGEgeG1sbnM6eD0iYWRvYmU6bnM6bWV0YS8iPjxyZGY6UkRGIHhtbG5zOnJkZj0iaHR0cDovL3d3dy53My5vcmcvMTk5OS8wMi8yMi1yZGYtc3ludGF4LW5zIyI+PHJkZjpEZXNjcmlwdGlvbiByZGY6YWJvdXQ9InV1aWQ6ZmFmNWJkZDUtYmEzZC0xMWRhLWFkMzEtZDMzZDc1MTgyZjFiIiB4bWxuczpkYz0iaHR0cDovL3B1cmwub3JnL2RjL2VsZW1lbnRzLzEuMS8iLz48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOnhtcD0iaHR0cDovL25zLmFkb2JlLmNvbS94YXAvMS4wLyI+PHhtcDpDcmVhdGVEYXRlPjIwMjItMDQtMjFUMDQ6NTM6NTUuMjcxPC94bXA6Q3JlYXRlRGF0ZT48L3JkZjpEZXNjcmlwdGlvbj48cmRmOkRlc2NyaXB0aW9uIHJkZjphYm91dD0idXVpZDpmYWY1YmRkNS1iYTNkLTExZGEtYWQzMS1kMzNkNzUxODJmMWIiIHhtbG5zOmRjPSJodHRwOi8vcHVybC5vcmcvZGMvZWxlbWVudHMvMS4xLyI+PGRjOmNyZWF0b3I+PHJkZjpTZXEgeG1sbnM6cmRmPSJodHRwOi8vd3d3LnczLm9yZy8xOTk5LzAyLzIyLXJkZi1zeW50YXgtbnMjIj48cmRmOmxpPmFkbWluPC9yZGY6bGk+PC9yZGY6U2VxPg0KCQkJPC9kYzpjcmVhdG9yPjwvcmRmOkRlc2NyaXB0aW9uPjwvcmRmOlJERj48L3g6eG1wbWV0YT4NCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgCiAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAKICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgICAgIAogICAgICAgICAgICAgICAgICAgICAgICAgICAgPD94cGFja2V0IGVuZD0ndyc/Pv/bAEMABwUFBgUEBwYFBggHBwgKEQsKCQkKFQ8QDBEYFRoZGBUYFxseJyEbHSUdFxgiLiIlKCkrLCsaIC8zLyoyJyorKv/bAEMBBwgICgkKFAsLFCocGBwqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKioqKv/AABEIAJIBQAMBIgACEQEDEQH/xAAfAAABBQEBAQEBAQAAAAAAAAAAAQIDBAUGBwgJCgv/xAC1EAACAQMDAgQDBQUEBAAAAX0BAgMABBEFEiExQQYTUWEHInEUMoGRoQgjQrHBFVLR8CQzYnKCCQoWFxgZGiUmJygpKjQ1Njc4OTpDREVGR0hJSlNUVVZXWFlaY2RlZmdoaWpzdHV2d3h5eoOEhYaHiImKkpOUlZaXmJmaoqOkpaanqKmqsrO0tba3uLm6wsPExcbHyMnK0tPU1dbX2Nna4eLj5OXm5+jp6vHy8/T19vf4+fr/xAAfAQADAQEBAQEBAQEBAAAAAAAAAQIDBAUGBwgJCgv/xAC1EQACAQIEBAMEBwUEBAABAncAAQIDEQQFITEGEkFRB2FxEyIygQgUQpGhscEJIzNS8BVictEKFiQ04SXxFxgZGiYnKCkqNTY3ODk6Q0RFRkdISUpTVFVWV1hZWmNkZWZnaGlqc3R1dnd4eXqCg4SFhoeIiYqSk5SVlpeYmZqio6Slpqeoqaqys7S1tre4ubrCw8TFxsfIycrS09TV1tfY2dri4+Tl5ufo6ery8/T19vf4+fr/2gAMAwEAAhEDEQA/APW2++e/NVX0rTZmJl0+3Yk8kxirWDmngVVgOdu/Dkt7cNbRtBYaWJFcxwJmSUqc9Twv4V0f06UKme1O8tl6g/lSGRXFnDe2kkF1EssbDJU/09683utc1Twd4fT7JsvzqDlhMh3TwLnGGHfA716cM4ODgkEA46VxttJbfD+W5XWIzLYXD+Ymo+XuKk9UcdhnpTDYyvBs9xrl9ryareNqEb2qiCd04UjkqD2I4rr/AAb9ofwlaSXYxLLvlPvlic1z2oa94W1KOW08MahEL3VGCSi3JUEdz6A+9djE8WlR6bp6bXVlECFWBA2r/wDWoFuZzeJirfaGs2Gk+Z5RvGcD5s4B2+me9bwwR8pyOxHQ1jSeE7WRws8tw9kJPMFizfus5z+We1atnaxWVsILbcI1J2hjnaPQe1AaD5ZI4IWlmkWONBlnc4Aqtp1xYXt5cXmn3UVxIyLHJsYHAGcfzqDxDYTalpcaW8SztFOkrW7ttWZQfuk1jaZFqMXjp9SuNF/s6xubQWwWIhsOGyGbb0GOM0dR9Df1IPdXMOmxOUDjfOy8bY/T8alvpWs7a1stNQJNO/lxADhFH3m/AU2Fv+KivI3PzG3iZM915B/WsnWpL+LxN9ttLiCGHTbEyusy5D7m6Z7H5aQbG1qekwaipKosV5Eu6G6jAVww9/Q1Jp159v0uK4dQsvKSr/ddTgj9KksZ/ttpbXKo0fnRrJtbqMjNZ+kyp5mq3jHbavcs6HsQqgMfzBoETXGoSHW7XTrMKxwZbpjzsTt+JNaicrXOeE7uDULa8vVLfa7iYvKrrtZU6IAPTFdFH93imAYpR0oZlRQXZVz6nFO7UxCCnim0opDH44zTaVnSKF5ZW2oilmPoBRGwlhSRM7XUMMjHBpDDFOHSloFAC0UUUAFKBSUooAMU7FAGaU0AIaQUtFABThSClFADhRjNIOtOoEHWmT28V1bvBcIHjcYZTTxS0gOUzThzim4qSPGfpVgjHmhfW9WuITcTwWdnhGED7TJIRk8+gBq5Y6Lb6dOZYJrqRsY/fTlx+VR6Em+wmuc8XN1JKPpnA/lVnVrhrbSJjF/rZMRRY/vMcCkFi0OcUPBDcArNEsoxjDjIx9K5VPF9vpet3Ogm3mvHslUAwDdxtBOT65zVOLXNZ1K3WaeSW1trxzJBbWkW64WEcEsegoQGzdXnhG0vJ9OuxZRzwqGkgEQ3c9MYFRx+FtB1qy8+Czu9PYNmKRXaNx/tAZpnhnwrplnrMuv6bdteRXq8/alDurDrhjyOnSuqjmS6jEkDrImSAy9Mg4NK40cv/wAIlq9uv/Ev8Yagnos6LIB+dCWXje1b5NW0y9X/AKbwMh/NTXVhfak2j0qgOdF34whGZNL02494bll/mKRvE+sWqZvvCV9gdWtpEkH8810oXPA60lvPHMrmGQOI3MbEdmHUUWC5wmq+PtFZobiQXukajbk+Wbq2YI47oxHY0+DxH4a8TGPUNRjuY2TCOI8tDLjkZx169DXb3Fvb3kLQ3sEdxEwwySKCDXF33wn0oyG48O3t3otxu3AQSny8/wC7UsDaHiAa40uneHo5AUASa5dNiwofTuTjpWjqWnk+G57DT16Q+Wig4yO/4nmsbRotS8NeZHqVpNerMw8y+jk8wnHAyvUCur2Ybg00BiaRBd3Grz6jcWZsIFt1toIHI3MAc7jj8hW0I1JQsDlTlcGnYpRQBi6kbqDXvMGmy6grxKLXb/q42/iLelJ4ev7mMTafr8qJqYmZwmcK6Hps9QBxW6GI6Eiobi2gu9v2mFJShypZclfoe1ICY0CkzSimBl+JL2G2tbaC4LCGeTMxRSx8teSMD14FaNhqNnqtqJ9PmEkYO0gDBU+hB6VX1SG/kltLjS/s5mg3Ky3BIUqwHp9Kdpen3Fp9onvZYnublgziFcIuBgAUgL4pQuaUDJrnbm8vta1q70nTrxNPhtCFmlGDK5Iz8oPQYPWgDoSMUgFEcTQwJGztKVUAu3Vvc0k00NrbvcXcqwwxjLO5wAKAHgUuK5m78babPpt8mlzSfaY4WMTSQsqt7qT1xV/wkjxeGYI3mefbI4WZzlnG480AWtZMiaPNJA5SSIq4I74PSpLieYatYRRf6uVXaUY6ADj9asnDAhgCD1BHWnbuc456ZoAGGKTFKTmkoAKUUlKKAFpRzTaUHFAhwpQfm54A6mmg0y5t4ry1e3uFLRSDDKCRkfUUAc1iq+ptcR6NdtZoXuBC3lqvUnFWacrd1PIpgYOl+J9Fisba0ed7NoolXZcRMmOPcVq3Nraa3axbbpnhVxIGgfqR2zVplWTiVUcejKDRDDDBkQQxxBuuxQufypAUl0SygsbiDToltHuF2STIMsw75PrTJtIuob5J9GvI7QfZ1t3V49xCr02+hrVAFOAycUwsZ7WcumeH5oNJdfORGZXlGdzHkk475qv4PtNWsfDtnb6qLbCxAgxbg2TzyD9asXF3e3N/JYaOYozAB9ouJV3BCeigdzirWn2lxaK/2zUHvXkOcsgUL9AKfQNCss7N4m1Gck/Z7OyWPA6FyS39P1qlovimfVdEu9Sm0t7OO2jkBaVxkuvbb1Ga341SNpCihTIdz8feNV7nTre6trmAjy1unDy7ONxGP6ClYewWeq28rW8U00cd68KSPBu5GRnpTJGg8PaJNcTB2jWQyOVHJLtj+tZuoeG7i81aeWM2yRTyxyrOQfNh2AfKvscVc17w5Y+INn2x7lCmMeVMUBwc8gcGnYRrkAck46frTwMdRis7VbOW+jsLeFm2pdRyStnnYvP+FZugavqTap4gh1kl7ayYyWkrRbN8fOfrg8UtR6HRqTn5fxp3vXK6x4jWbSIbSESWt3e26uZAPkg3HADN2J5wa3NFsrrT9Ft7S+k8yWIEbt244ycAnucUgL1KKAKMUwFopwXIoxSAbindaMUoUk4FACgfMKk4zWZqdvrpmSTSLqzjjVfmiuYycn/eFUxq2vWPGraELhB1l06Tf/46eaAN6qGpaBpmrSLNdwYuE+7cRMUkX8RSabr2m6qxjtZmScfegmUpIP8AgJrRNAFLTrG7sZSralLd22OEuFBdT/vDrUPiW0lutLia3g+0m3nSZrf/AJ6qp5FagNGfegDkLpk8Wv8AZ7TTLu1BBSe5uUKCNDwQg9SOM11lrbw2dnFa267YoUCIPYU/cfWjNAAaBR2pKAHZopKWgApRRQBQAZopKWgQopwpq9aHkSGNpJWCIoyzMcACgDmaUDHQYopaoBRSXFxFZWklzcNtjjGSfX2FOWs/W/nfTYH/ANXLfRhx2OMkD8xSAuWc811B5s9s9sDyiueSPUjtT7u5Wysp7p+RChbHqewqdhknPXNZ+runm6ZbSsFinuhvJ6HaCQPxIFG4iXRrJ7LTUE3zXE7Gadu5Y/4dKijnmvPFkkcLFbSxhxLjo8r9B+A5/GtUkqzMVJIGQKpaLaNaWB87m4uJGmmP+0x6fgOKB7liGeGeWeOKRWeAgSrnlM+tTADbkEEHuK4/WNJutV8XwXSCW30sn7Ld7GINwRyCR6A8Zre1u5k0/T7WHTwI5ZriKCIYzgE8/oDTA06GZUjZnYKqjJYnAArN1LV5LXUksrGwkv5/L82RI2C7F/HufSmNOnifw1eRWge2kYmCRJRho2BGQfwqbjsa44xg596WZUngaGdQ8bjay+o9KCUijJOFjjXk+gAqGwvbbVLNbuwmWeByQHXpkHBqhbFebQrC41J7uVHbeiK0Jb5Ds+7x7Vpggtk0mMAHOOcUGkBj3lx4ohvpfsNlpt1aZ+TfMySY9+MVf0q7vLu3dtR082MytjZ5gcN7gjtVkZpy0DKGt3VxA2m21m+yW7u1Rm9EALN+gq3PqVjBcSwzXUUMkaCRxIwXCk4B5+lMurMy6pZXo+ZbVXxH0yzDGc/SuS1jwDc+IvFUOs6vdqEXERtIz8qxfXuaSA6i917StMWE3l7Hmc4iSM72f6AVVnuNa1m0ki0zTzY28qkG5uiVfHqqDnNUrbw9pun+N4ZbO1H+g6c0icklmZsd/YVz0dw999q8Sy+LZLO/bmPTYmBRMHCoUPJJ/rQBX8DLpnm3tr4g8QXcsiXTLb215K0WAO+D1yelepoRtBQ/Ljgg9qqrbQ6hYQPqVnA8rxqzq0YOGI5FWI40ijWOJAiKMKo6CgDI8RQpLf6MEUC4a8BEgHzBVBLDPpW033jWXekHxTpCN2SZ/wBMVqN96gBKBRRQIWiiigYvagUUUAFAoooAdS5FMzRQA7NA5pneloAdk1leJbS6vdDZLOITusiSNAWx5qg5K596080ZoA52lFJSiqEOFVdW09tU01oYZPKuEZZYJP7rqcg1aFPUcUgKemawt85trxPsuox8SwOcbv8AaX1FW76ygvbV7e+h8yI847gjuPeob/TbTUo1W8i3Mn3JUO10+jdRWXc3174ekhV75tSjkOIrZoSZj9GHB+pouBf0ABrLfbag97aZKx+cuJI8HlSe+PetTJDVk6BaXNrHd3F5GsEl7OZ/s6HIi4Axn14ya1qYxecVDPaxzXltcyZLW24oO2SMZqtqbXUlzp1tZs0Ykn3TSL2RRkj8elWNTuLm1sZLi0tftbx8mFWwSO+PegRUutJnm1GS+0/VJrGaVFSXaiuGx069Kt6bp0el2RgSV5pJHMksr9Xc9TVG18T6NdyW8cF4pmueFhwdyn0Ydj9a2GKRlRJIq7ztQMcbj6Cl1H0Ibqyh1Gzks7reI5RhjG21h+Nc54K8O6hoFtPEupSGya7mKW0yZIXccEN711E2+O1kkhhM0qqSkYbG4+me1Z2kaw+oT3Npe24sr22K74POD5DDIINACa6ztqWgQIcbtQDtg9VVWJqzqut2mivatqJMcNxKYvPP3UbGRu9M4qeS1ikubaeVT5lszMn1IIP86oeJPD1v4q0xdOvJWjtjJvcIOSR939aANHT7621Sz+02Tl4ckBipXPuM9qmiljniWWB1kjYZV1OQaypzeaf4LmSbY13DbmIGPgMcbVIHbqKXfF4V8N2VnHBJczRosEEEX3pXA5+nrmkBsnlevFM82PyWlWVDGoyXDAgfjWZp2pHXdPvrS7s5dPuI/wBzPCzhmTcvBDD2pPDvh+28O6S9jDI06O5djIP0xQBp280Fzi8tHilDKF82Ng2R6ZFQvo+mS3y3kmn2zXKnIlMQ3D8axbzTLXQ9Y0640QfZJLy58qa2jOI5Uxljt6AjrmunIA6UABOaimura3ZVuLmGEt0EkgXP51IKrXumafqKhdRsYLodvNjDY/OgClcXEE/i3SjBNHN+5mB8tg2OAe1bB61l6b4c0fRrh59L0+K2lcbWZB29K080ALRSZozQIcKKTNGaBi0opKWgANJRRQAUUZozQAUtJmkzQIdRTaZM7x2srxLvkVGKL6nHAoAwqUUlKKYDgM1IvSmLTxQAjSeXFukBPOMKM0/ADBsDcOAccigU7HFACA08GmCnDrQA8cU4Hng4ptAoGZ+l+HrHSNTvr2yTDXzb5QwB+b1B7fSmapF9t8R6JbkHZbO925Hsu1R+bVrCk/izgZxjOO1AM5zXfEF1ba3c2cF9FYLBbiSLzId5uHOflH5VebQbLXbO0vdasxHqLQIZJYGKMrY6ZHNa5VGZWdEYr0LKCRTi2aQyGVjp+nZhhnu/KUAInzO359aZpWow6tYi7tg6LvZHSQYZGU4IIp17ZxalZvaXJkWOTq0TlWHuCK5rQfD2u6BLew2GpR3Fm10XjhvEyWUgZO8c5oEdeemCMg9jVLUdPkvp7W5trsWt1aljGzR71O4YORV5fmC7gA2OQOxqhYX0l1rOq2cqBRZvH5ZH8SsuefxoAXTNOGmxzF5jcXFxIZZpiMbm+nYe1XxUNvcQXcXm2k0c8e4ruRsjI6iqFzql/aysH0W4nQdHt3Vsj6daAGRsLrx5MJsEWVghiB7F2O4/kAK3etYWmJc3evTavcWclnG1qtssUvDtht2SO1bgb8qAOe8Q+Jm8MaxZHUMPpt8DEgjTMiTAZAx3B6Vvwy+fbxyhGj3qG2OMMvsa5zxDoIu7afVJGM99aOs9oO0QU5IA9SM10cUwuYYp4zlZUVx9CM0CHZ60o5rCsJyniLxDcXEpS0g8pSWPyqQmW/mKWz8VWVxex28tvd2gnP8Ao0txFtSb/dNMDbPFGaGGKTNFhDqKTNJk0WGOzS5pmaUGiwDqKQGloATNFFFIAoozSZoAXOKA2OlIabQBh0CiimBIv3aeKhFSKaYEgpab2pRSAUVIOlMWpBQMKKRlLDAJGe4oVdqgZJwOp60gHClpKKYC0oNJS0AOHNKOKaKWkA9PvCoorRLfVLq/UkvPGqug77c4p4oyfWkBx0Hh/WF8XDUYi2n6PdSB5rKFwG3gcOfQHuBXT6jqg06awRo94u7gQk5xsGCd36VbyTUE9lbXckbXKbjGGCf7O4YJ/KnsBFpet2erwrJAWjEjOIRJwZlU43L6il1vVW0ezhufszTxtOkUm1sFAzbd3vyRWHb+HdXh/sy1kubSS002YPBMqlZQg/hI6cjiuiv7OPUIkinLBFlSXA7lTkD8xSEWyPvDqOn1pI8IoVQFVRgAdhSFurE4HUk1Ti1i0m146TC4knFv9oLIwKgZxj61QCanpS3uj39paFYpbtxIzNyGYY6/gMVnXVtqutTWdte2UNna20yTu4k3lyvQL6V0BzznikGGG5WDD1BzQA5jk0maTNGaYgoozSUhi0UnNGaBAybiCCQRTweOaYDS5oGOBpM00lsjb+NLk0gCikzRQA7NBNNooAxaXFJRmmAtOBxTRS0ASKxNOFMQ1IKAHin1GDil3UDH5oFNHNOHFAC0UmaKAHUtIDS0AKKKBRQA6ikDUuaVhADS03OKM0DHZoJyKTrR0oASWGO5t3t7hBJFKpR0PRgeorjtJ+HWl2PiTUb62W5sMMgtvImKgLt547jNdmDS7s0wM/xFqOm6fojjWJHMU48lY4ziSZj/AArjuayPBuh3GnXVxfCx/suymiCQ2PnGRuud7c8Grfiqz0S/tbeLxJYS3Fsjb1mRWIhb1JXkVSsfCmmeWLnwvrt9bn+EpdGZPoVYmgDqZJY4QDNIsYZgoLtjJPQfWnnI6is3UdK/tTw9JYanIZ5SmRNGuw+YOVYDsQcVz3hey8T3OqJc+Krt4pLABIoIh+7nQj7zerfyoEdnSnAUknAHc1zWu+JW0vxLaWwLG3jjLzxxpuaZ24SNffvTNQz428M3VraLNYXlvOvmQXGVIYc7Wx2IoA6gU0mszw5aX9hoiwarKjziRioRiwRM8Lk9cVpE0AANLmmA04GgB2aM03NLmgAyaAaSkJxQA4mk3U3dRmkBk0maSlq7CHA0delIKegpDHoKfSqtLtoATFLRRSAcKXNIOlBoGLmlptKKAHUoNJRQA7NFNpQaAFoozRQIXNLTaWgBw4o602g0DHUZpgNGaAJVcjI7HqDWbcaBplxI0ywm2uD/AMtrZjG36davbqTNAGWtlrlg2bLVI76P/nlfLg/99r/hU/8AbF3CM6jpNxH/ALVviVf05/SrwNPRircHFAjEuofD/iESxySp9okdZNwYpKjKMKRnkEVf0fR4NFt5Y4Zp7iSd/MlmnbLOcYH6VLdWdreqReW0c3uy8j8etVYNNeyukfT7yRLcn95bykuuP9knkUAaJNGaaTzSZpiHClzTAaM0APJ4poOO9JmkoAeWpCfSm5pM0hjs0ZpuaM+lAGZRRRViHLUyUUVD3GTr0pTRRTAKQUUUMBaKKKQwoFFFAC0UUUAFAoooELRRRQAUtFFABRRRQAUtFFACUooooAKKKKBhSUUUCCkNFFACigUUUCFooooGIaSiigAooooA/9k=)

Like this for next pattern check minus first alphabet multiply by 10(whatever given) and then add new alphabet value.

<https://www.programiz.com/dsa/rabin-karp-algorithm>

code