1. **Genetic Variation:**
2. How much genetic variety exists between populations or within populations?
3. In what way do genetic variations connect to features or diseases?
4. How does genetic diversity vary across different geographical regions?

KPIs:

* SNPs are single nucleotide polymorphisms that are used to analyse the frequency and distribution of genetic variants throughout the genome.
* Analyse the diversity and distribution of allele combinations along a chromosome to determine the haplotype.
* Measure the non-random connection of alleles at various loci to determine linkage disequilibrium.

1. **Disease Susceptibility:**
2. Which genetic variations are linked to a higher or lower chance of developing diseases?
3. What interactions exist between genetic and environmental factors that influence a person's propensity to contract disease?
4. What impact does a given genetic mutation have on the likelihood of getting a particular disease?

KPIs:

* Calculate the odds ratio to determine the degree of link between a specific genetic variation and the likelihood of contracting a disease.
* Create a composite score based on a variety of genetic variations to forecast disease vulnerability.
* Gene-Environment Interactions: Examine how certain genetic variations and environmental variables combine to cause disease.

1. **Pharmacogenomics:**
2. How do genetic variations impact a person's response to medication?
3. Can pharmacological treatments be tailored using genetic information?
4. Are there any genetic indications that can predict how a person will react to a specific medication?

KPIs:

* Identifying the genetic variants that influence drug metabolism and response is essential.
* Analyse how genetic variants affect the efficiency and security of a given drug.
* Watch out for the genetic markers connected to drug side effects.

1. **Ancestry and Population Genetics:**
2. What is the genetic make-up of a person or a group of people?
3. What racial and ethnic genetic variations exist, and how do they connect to one another?
4. How can genetic data be used to investigate population migrations and uncover historical relationships among different populations?

KPIs:

* "Ancestry informative markers" are genetic variants identifying a person's ancestry.
* Using principal component analysis, examine genetic variation to ascertain population structure and relationships.
* Fst (Fixation Index): Calculate the degree of genetic diversity among populations.

1. **Gene Expression and Regulation:**
2. How are genes expressed and controlled in specific tissues or under circumstances?
3. What processes regulate the expression of genes?
4. How do epigenetic modifications influence gene expression and regulation?

KPIs:

* Measure the quantity of RNA transcripts to comprehend the levels of mRNA expression.
* Locate the regulatory components that govern how genes express using transcription factor binding sites.
* Examine DNA methylation and histone alterations to understand how epigenetic modifications affect gene regulation.