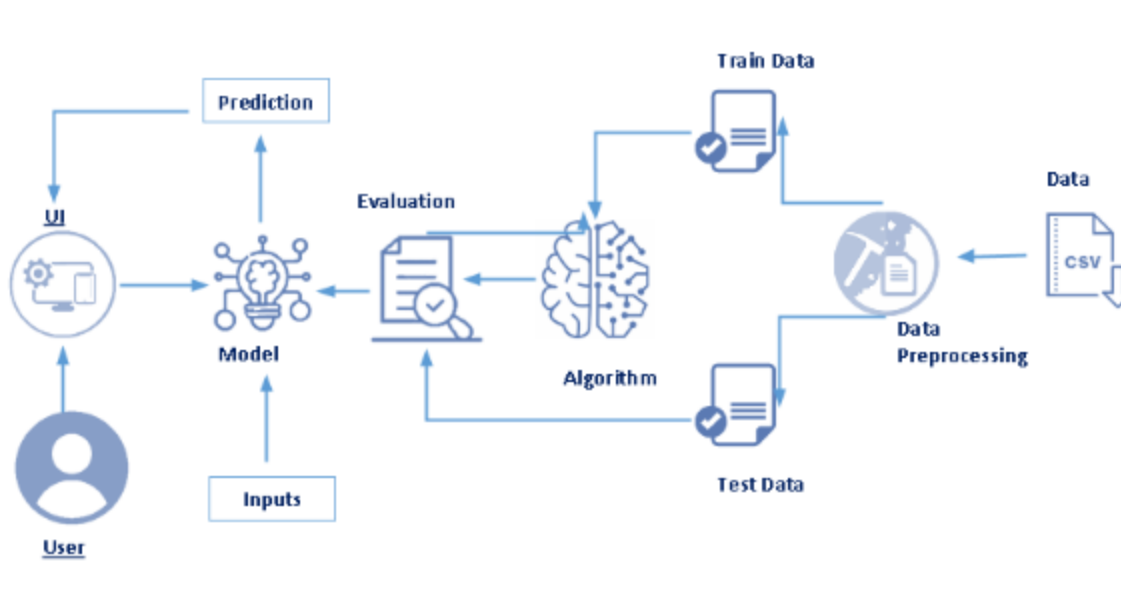SMART INTERNZ
HUMAN DEVELOPMENT AND INDEX BY USING MACHINE LEARNING
PROJECT REPORT

1.INTRODUCTION

1.1 OVERVIEW

The Human Development Index (HDI) is a statistical composite index of life expectancy, education, and per capita income indicators, which are used to rank countries into four tiers (very high, high, medium & low) of human development. A country scores a higher HDI when the lifespan is higher, the education level is higher, and the gross national income GNI (PPP) per capita is higher. The HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI can also be used to question national policy choices, asking how two countries with the same level of GNI per capita can end up with different human development outcomes. In this project we will be building a machine learning model to predict the Human Development Index of a countryby taking a few important aspects as inputs. Our model will at last predict the HDI score of a country and will also tell under which category it falls into (very high, high, medium or low).

Technical Architecture

1.2 PURPOSE

THE USE OF THIS PROJECT

The HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI can also be used to question national policy choices, asking how two countries with the same level of GNI per capita can end up with different human development outcomes. These contrasts can stimulate debate about government policy priorities.

The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three

dimensions.

The health dimension is assessed by life expectancy at birth, the education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age. The standard of living dimension is measured by gross national income per capita. The HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing GNI. The scores for the three HDI dimension indices are then aggregated into a composite index using geometric mean. Refer to Technical notes for more details.

The HDI simplifies and captures only part of what human development entails. It does not reflect on inequalities, poverty, human security, empowerment, etc. The HDRO offers the other composite indices as broader proxy on some of the key issues of human development, inequality, gender disparity and poverty

2 LITERATURE SURVEY
2.1 Existing problem
Life expectancy

- It is the age by which a particular person belonging to a particular age is expected to live.
- Life expectancy at birth in India: Males: 67.34 years , Females: 69.64 years

Infant mortality rate

- It is the total number of infants dying below the age of 1 year out of 1000 babies.
- Infant mortality rate in India is 40.5 infants.

Maternal mortality rate

- It is the total number of dying mothers out of 1000 mothers while giving birth to babies.
- According to the 2011–13 census, maternal mortality rate in India is 167 deaths.

Adult literacy ratio

- It refers to the number of people of both the sexes, i.e., male and female aging more than 15 years having the ability to read and write.

Percentage of the population below poverty line

- People below the poverty line are categorised according to calories consumed by each person per day, which is 2400 in rural areas and 2100 in urban areas.
- Any person consuming calories less than the minimum limit mentioned above is said to be below the poverty line.

2.2 proposed solution
This article describes the method to calculate new Human Development Index. The article provides the goalposts set for the composite indices in order to calculate HDI. It gives information regarding calculation of Life Expectancy Index (LEI), Education Index (EI) and Income Index (II)Gross

Domestic Product (GDP) could not satisfy the proper assessment and ignored completely welfare of the humanity and turned towards economic growth. The economists have gathered and prepared a measurement to upgrade the present system and Human development Index was born.

1. Life expectancy
2. Education or Knowledge availability
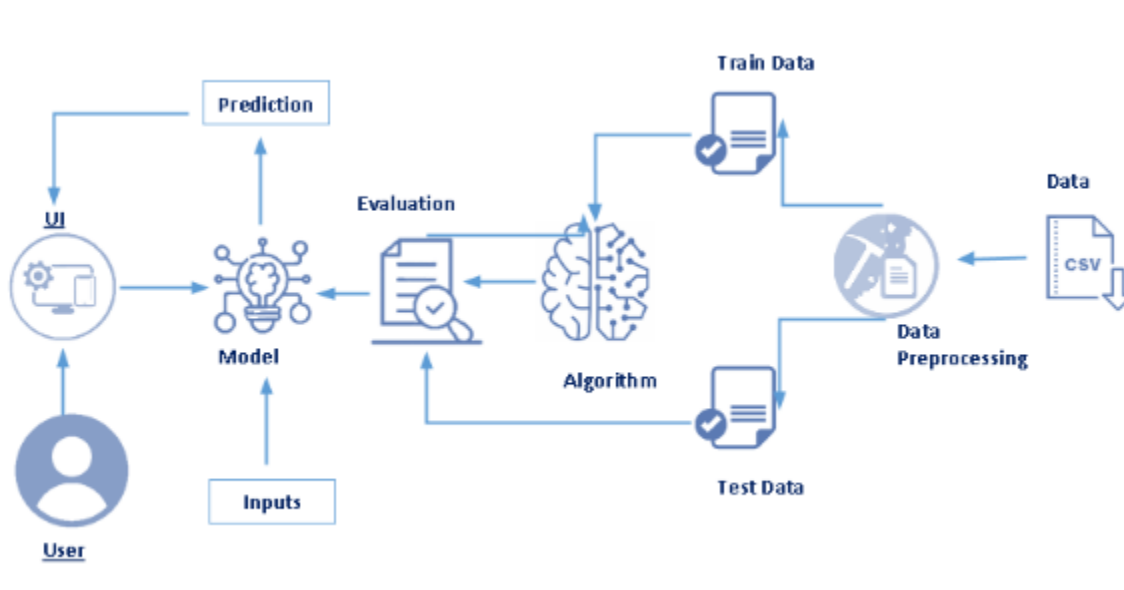3. Per capita income of the concerned people of a country.Education Index (EI) assessment is composite of two indices. They are
1. Mean Years of Schooling Index (MYSI)
2. Expected Years of Schooling Index (EYSI)

3.THEORITICAL ANALYSIS

BLOCK DIAGRAM

HARDWARE AND SOFTWARE DESIGNING
SOFTWARE REQUIREMENTS
1 project enivronment:jupyter notebook
2 numpy,pandas,matlop,sreborn,sklearn module
HARDWARE REQUIREMENTS
1 GPU
2 Any Operating system

4.EXPERIMENTS INVESTIGATIONS

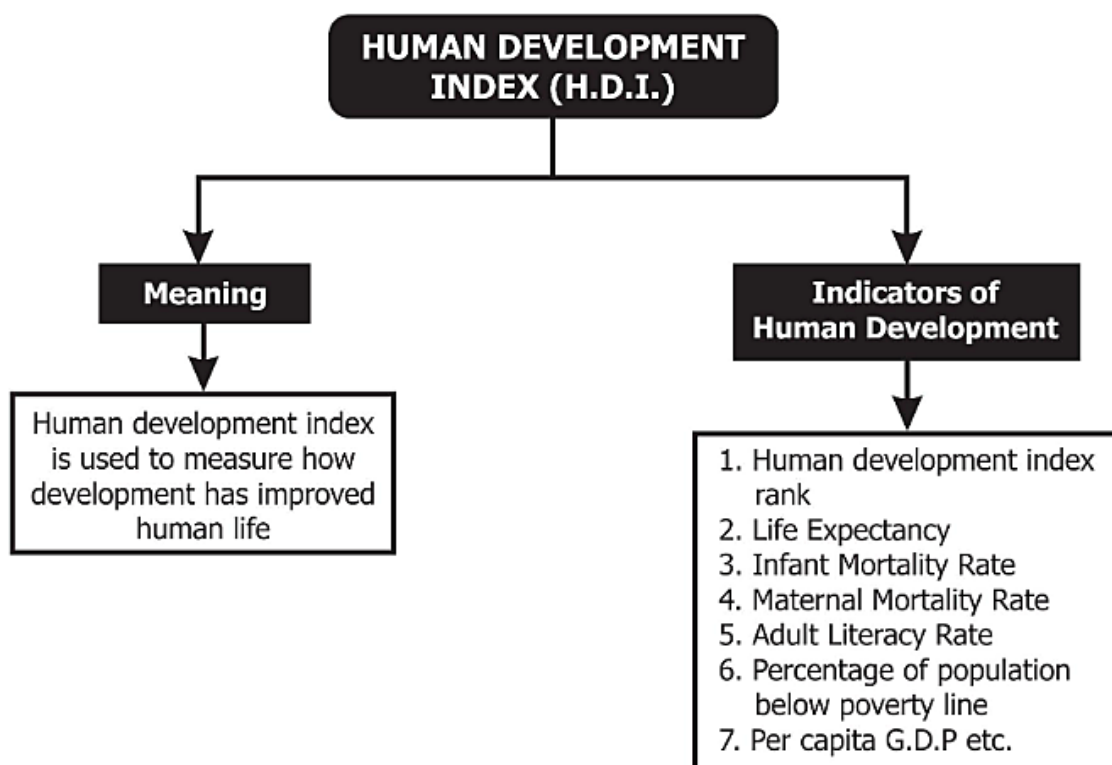| Analysis	Address the general theme of human development
	Address the specific theme and related issues
	Evaluate relevant national development policies

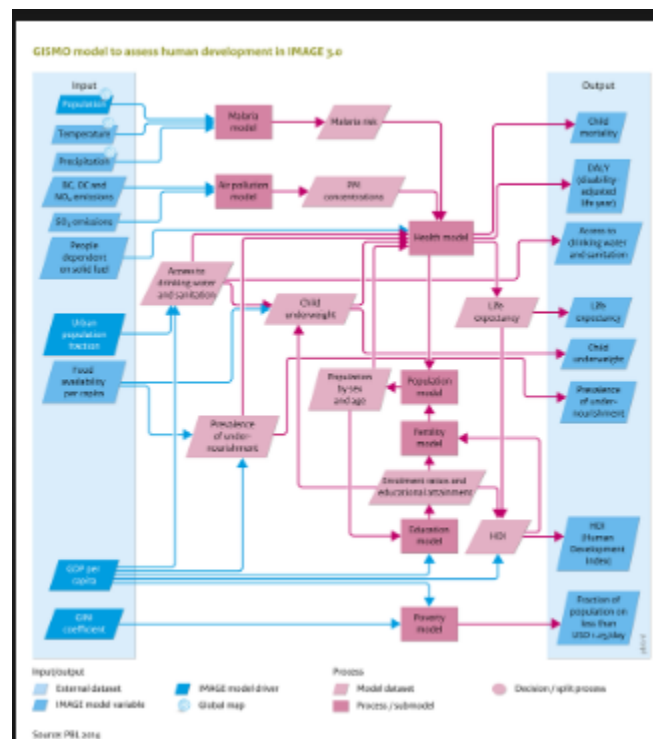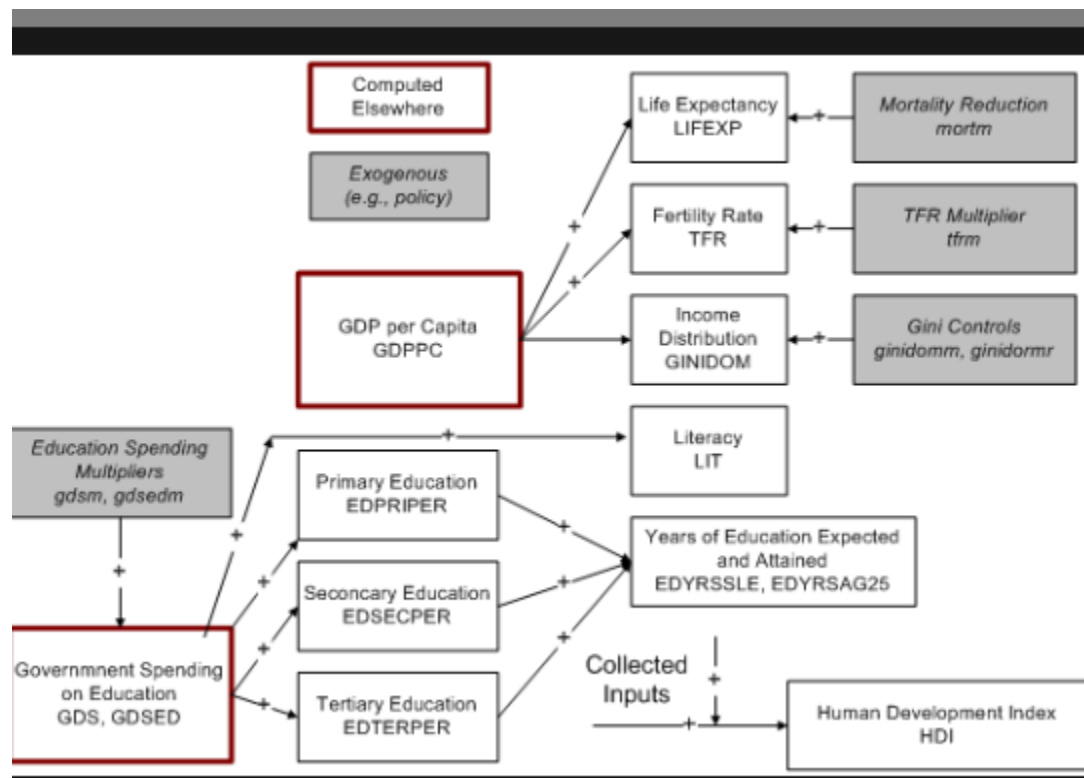| Results	Develop report conclusions Produce recommendations

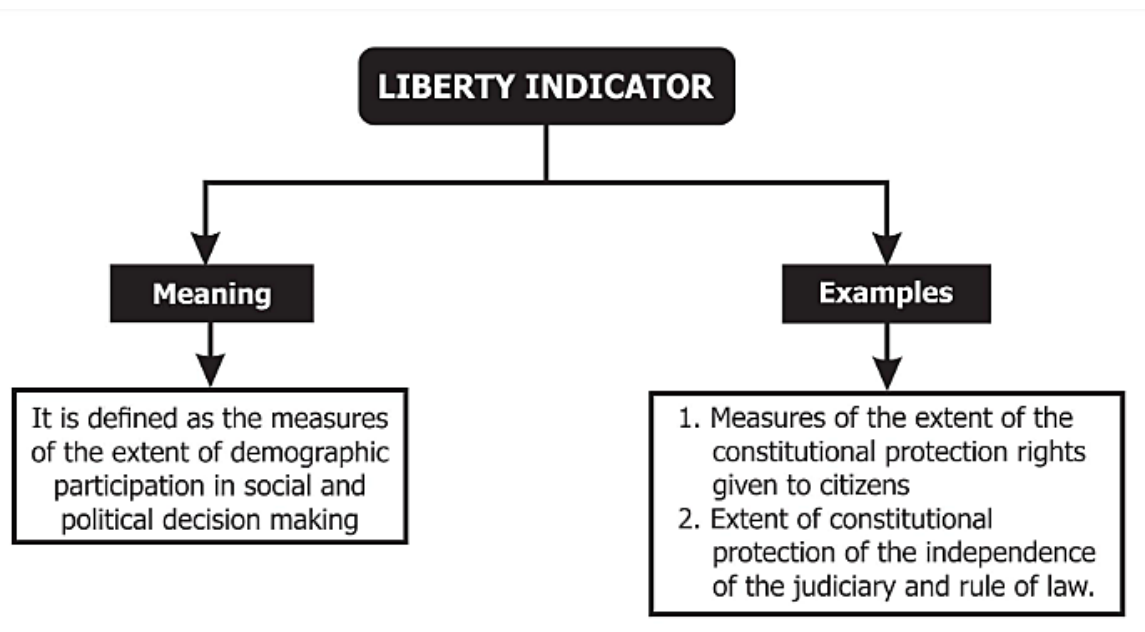| Research	Data collection and processing

To find to collect dataset countries,life expectarty,HDI rank,gross nation,gender,population rate mortatily,litearcy rates,.
to verify population in countries wise .to verify graps
5.FLOW CHART

HUMAN DEVELOPMENT INDEX (H.D.I.)

Meaning

Human development index is used to measure how development has improved human life

Indicators of Human Development

1. Human development index rank
2. Life Expectancy
3. Infant Mortality Rate
4. Maternal Mortality Rate
5. Adult Literacy Rate
6. Percentage of population below poverty line
7. Per capita G.D.P etc.

GISMO model to assess human development in IMAGE 3.0

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                    ┌─────────────────────┐
                    │  LIBERTY INDICATOR  │
                    └─────────────────────┘
                              │
              ┌───────────────┴───────────────┐
              ▼                               ▼
        ┌───────────┐                   ┌───────────┐
        │  Meaning  │                   │ Examples  │
        └───────────┘                   └───────────┘
              │                               │
              ▼                               ▼
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| It is defined as the measures of the extent of demographic participation in social and political decision making | 1. Measures of the extent of the constitutional protection rights given to citizens
2. Extent of constitutional protection of the independence of the judiciary and rule of law. |

6 RESULT

This is the home page where a brief introduction is given about the Human Development Index and its importance. To see the prediction you need to click on predict on the top right corner. You will be navigated to the prediction page

Here in the prediction page we get to choose the country for which we want to predict the HDI score, enter the values in the required areas in the mentioned ranges. Then click on predict to see the predicted result.We see that the prediction of the model is High. The country has a Medium HDI score. In the same way we can try different countries.

ADVANTAGES&DISADVANTAGES

ADVANTAGES:

Another advantage of development is having better medical services; better education and an overall better living standard. Lastly, countries, which are developed, have a better economy, as production increases, the wealth of the

country increases.

DISADVANTAGE:

Limitations of Human Development Index HDI reflects long-term changes (e.g. life expectancy) and may not respond to recent short-term changes. Higher national wealth does not indicate welfare. GNI may not necessarily increase economic welfare; it depends on how it is spent.

APPLICATION:

i)The human development approach focuses on improving the lives people lead rather than assuming that economic growth will lead, automatically, to greater opportunities for all. Income growth is an important means to development, rather than an end in itself.

ii)HDI or Human Development Index is important as it gives more info about the status of a country than the Per Capita Income method adopted by World Bank. HDI tells about the health, wealth, education and life expectancy of a country

iii)The indicators used in the 2020 report were life expectancy at birth; expected years of schooling for children; mean years of schooling for adults; and gross national income per capita. The indicators are used to create a health index, an education index and an income index, each with a value between 0 and 1.

iv)The Human Development Index (HDI) measures each country's social and economic development by focusing on the following four factors: mean years of schooling, expected years of schooling, life expectancy at birth, and gross national income (GNI) per capita.

v)The following are the components of Human Development Index.

1. Health: The first component of HDI is health and for determining a long and healthy life, life expectancy is the most important parameter.

2. Education: The development of a nation can be indicated by another important

component which is education. Education can be measured in two stages, which can be as expected years of schooling that is based on entry level schooling age and mean years of schooling (total schooling age) for the adult population.

3. Income: The third parameter that is considered for determining a good standard of living is income and it is determined by the gross national income per capita.

9)CONCLUSION:

 This index provides an assessment of a nation's achievement and helps ranking of different countries

 The HDI is calculated to emphasise that people and their capabilities should be the ultimate criteria for assessing the development of a country, not growth alone.

 The number of very high human development countries now (2012) stands at 47 out of 187 countries. 47 countries fall in the category of high human development. Again, 47 countries have been placed in the state of medium human development and that of low human development falls in the range of < 0.500. In this category, there are as many as 46 countries, as per the Human Development Report, 2012. This splitting of very high and high HDI value classification, however, was made in 2009 Human Development Report.

To calculate :

 Calculating the Human Development Index

 Calculating the Life Expectancy Index (L):

 Gross NI per capita

10)FUTURE SCOPE:

It is necessary to determine social measures of development for calculating the overall development of a nation. Human Development Index measures the socio economic factors and therefore, is considered very effective in measuring the

performance of a country in terms of these factors.

HDI acts as a tool in evaluating the socio-economic status of nations around the world every year and as such acts as a reliable indicator of the development of the nations.

The HDI thus has a limited scope. It cannot provide a complete picture of human development in any situation. It has to be supplemented with other useful indicators in order to get a comprehensive view. Thus it is human development accounting, not the HDI, which can portray the complete picture.

THANKYOU