GDP (Definition): It is the MARKET VALUE of all the FINAL GOODS & SERVICES produced WITHIN A COUNTRY in a GIVEN TIME PERIOD.

- Q. Why WITHIN THE COUNTRY?
Ans. We are interested in measuring the GDP of our country, (i.e., what is being produced here?) so we include goods & services that are produced within its borders, not elsewhere.

Example.
The value of the product produced by a Japanese firm on US soil, is counted in the US GDP & not that of Japan. Similarly, the value of the product produced by an US-owned firm situated in Japan is counted in the Japanese GDP, not that of the US.

- Q. Why the GIVEN TIME PERIOD?
Figuring out the GDP of a country for all time has no meaning. Essentially we are interested in finding out how an economy did during a certain time versus another, or how is it doing currently. The usual time of measurement of a country’s GDP is one year: so the most commonly available GDP figures are on an annual basis.

Example.
The annual US GDP 2001 was 10,208 billion $.

Note: Only market transactions in goods & services markets are counted in the calculation of GDP, as seen from the definition.

- The question now is: How to measure GDP?
Recall we must find the value of all final goods and services in order to measure GDP. One way to do this is to find out how much the four economic entities spend buying final products in the goods and services markets, i.e., their expenditures in these markets: The EXPENDITURE METHOD.

1. The households spend on goods & services they consume. This is called Consumption expenditure. We denote the dollar value of the total consumption activity in the economy by the letter C.

Example: Let there be 2 households in an economy. Let each only household consume food & buy clothes to wear. Let each household buy food worth $10 (say 2 loaves at $5
a loaf) and clothes worth $15 (say 5 shirts at $ 3 each). Then total consumption expenditure in this economy, \( C = (10+15) + (10+15) = 25+25 = 50 \). 

2. Firms indulge in expenditure to buy final capital investment goods they use in their production process. This is called Investment Expenditure, the total dollar value of which is denoted by \( I \).

Example: Let there be 3 firms in an economy. Let each firm use built-up factory space & computers in their production process. Let each firm build factory-space worth $10000 and buy computers worth $15000. Then total investment expenditure in this economy, 
\[ I = (10000+15000) + (10000+15000)+(10000+15000) = 25000+25000+25000 = 75000 \].

3. The government indulges in spending, i.e., Government Expenditure, the total dollar value of which is denoted by \( G \).

Example: Let the government spend on building a road for the population. It hires a contractor for this purpose, and the contractor charges the government $4000 for the road.

So, \( G = 4000 \).

4. The rest of the world exports from our country & imports to it. In other words, we indulge in net exports to the rest of the world. Let the dollar value of total exports be denoted by \( X \) and that of imports my \( M \).

Therefore, the dollar value of net exports is \( X-M \).


So US exports are worth: \( X = 400+2000= 2400 \)

US imports are worth: \( M = 100 +1000 = 1100 \)

Net exports: \( X –M = 2400 – 1100= 1300 \) (Trade surplus, net exports positive: The US economy is selling more dollars worth to Japan than buying from it).


So US exports are worth: \( X = 400+2000= 2400 \)
US imports are worth: \( M = 1000 + 2000 = 3000 \)

Net exports: \( X - M = 2400 - 3000 = -600 \) (Trade deficit, net exports negative: The US economy is buying more dollars worth from Japan than selling to it).

Q. So, how to measure GDP?

EXPENDITURE METHOD says: Add up the values of the market expenditures of all economic agents in the economy on final goods and services.

Add up Total consumption exp. of Hhs. + Total Investment Exp. of firms + Total Government exp. + Value of total net exports.

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GDP = C + I + G + X - M
\]

If \( C = 100 \), \( I = 200 \), \( G = 150 \), \( X = 50 \), \( M = 20 \)

\[ GDP = 100 + 200 + 150 + 50 - 20 = 480 \]

Note: Payments for Intermediate goods are not included, only that for Final goods & services. Notice, wage payment to labor is not included here, as labor is an intermediate good (input). Payment to labor is already included in the value of final goods & services and we do not want to double-count.

- Gross & Net Domestic Product

When firms indulge in production, the machinery they use undergoes wear & tear. If you have a house, the house suffers from inclement weather over a period of time, and you must replace the shingles, etc. These things are termed as ‘depreciation’. You need to deduct value of this depreciation from the value of Gross DP arrived at by our earlier calculations, to arrive at the Net DP for the economy for a particular time period.

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NDP = GDP - Depreciation
\]

Think of it as follows: A company uses computers to produce more computers. Suppose it uses 5 computers over a year to produce 10 more. But there is wear & tear in the production process, and 2 of the 5 computers you are using for production of the new computers, have to be junked. So, while Gross DP for the year will be the value of 10 computers, Net GDP will be the value of only 8 computers. You need to take into account the value of the 2 computers you had to throw away as a part of the production process. You have to make good those 2 computers and after you’ve done that, you can calculate what is the value of the new production that has taken place.
• There is another method to calculate GDP

INCOME APPROACH

Recall: **What is spent by one economic agent (expenditure), accrues as income to another.**

Examples:

1. The price paid for a good by a household accrues as income to a firm.
2. Wages paid by a firm accrues as income to households.
3. Taxes paid by households and firms accrue as income to the government.

So if GDP = Aggregate Expenditure by the agents in the domestic economy, then GDP = Aggregate Income of the domestic agents in the economy, as well.