

# OPTIMAX

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S&R CONSULTANTS

Steel Optimization software

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# INTRODUCTION

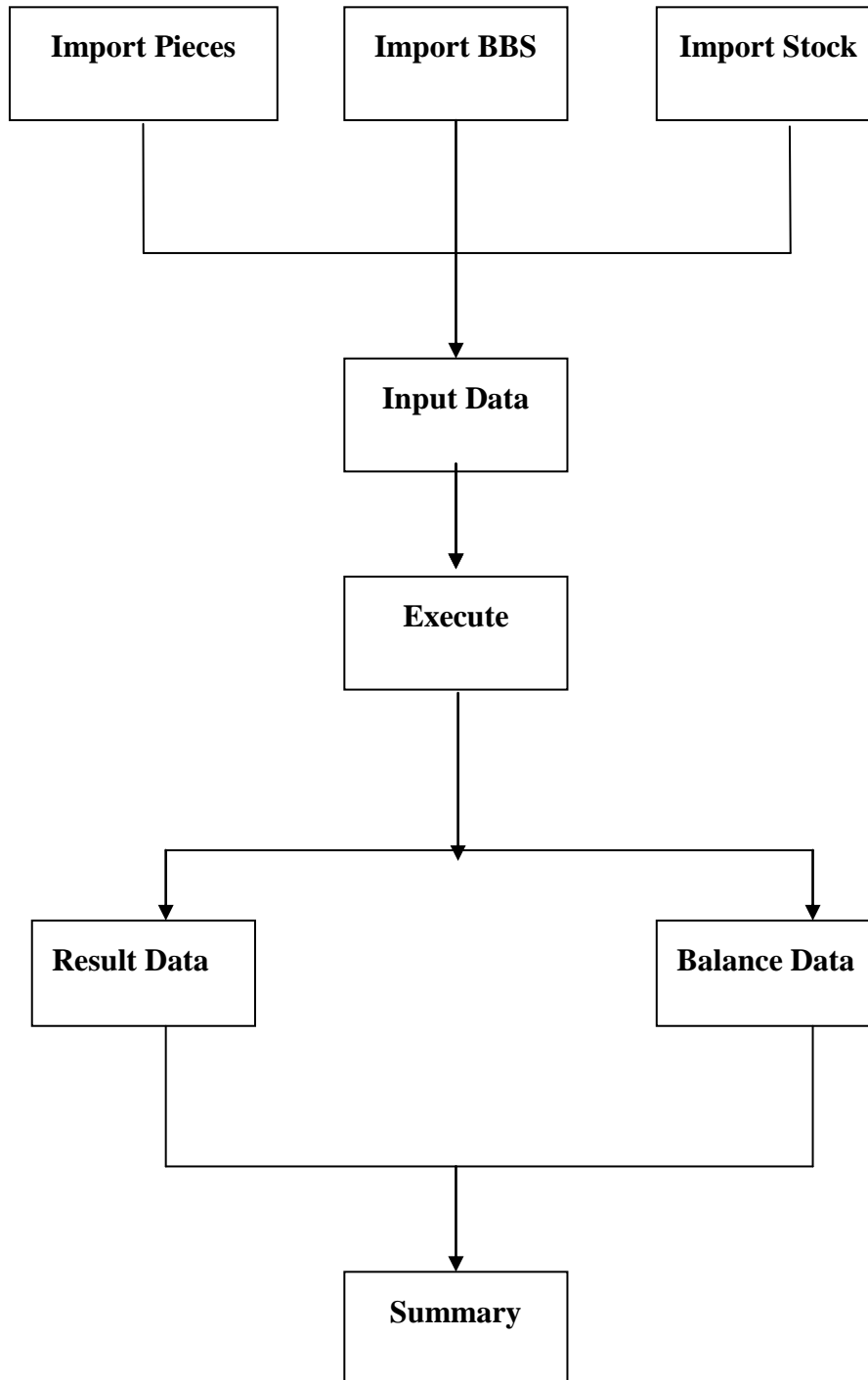
## Optimax

‘Optimax’ is software which helps to minimize the wastage of reinforcement, while cutting at site. It aims at maximum utilization of a full length bar. By using the proper bar bending schedule, ‘Optimax’ makes the best combination of bars that can be cut from a given length with minimum wastage. A schedule is prepared with all types of bars counted and sorted. This schedule can be used to cut and bend bars to the required shape in a cut and bend factory and also at site.

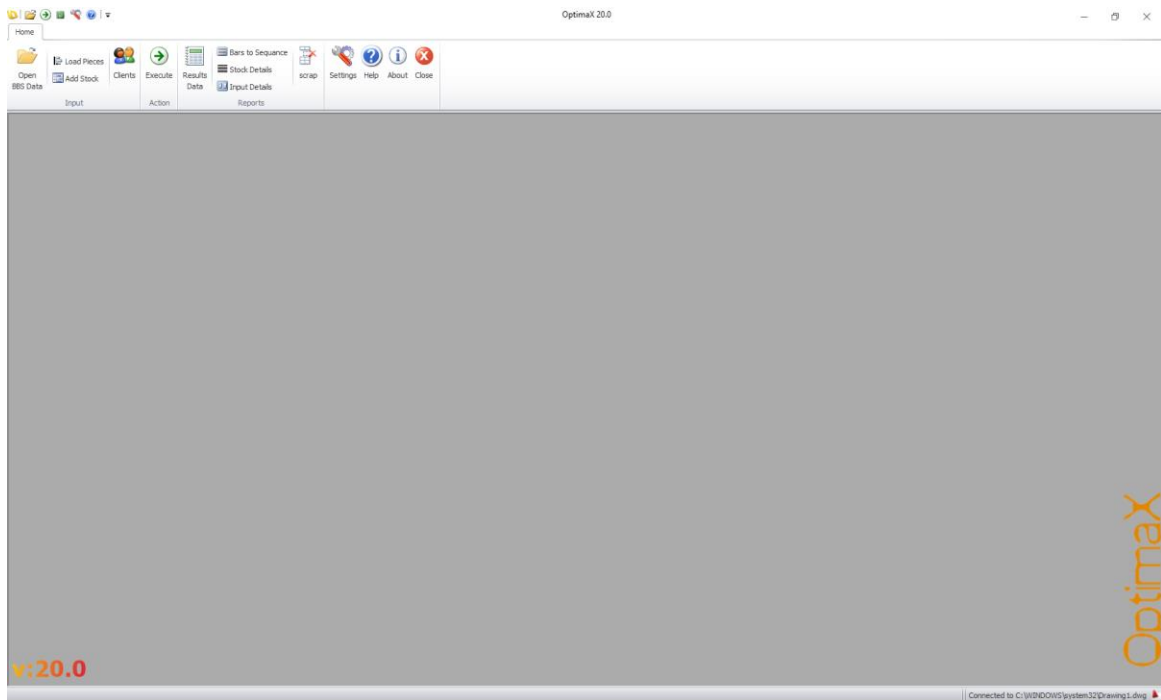
### Advantages

- Avoids wastage completely.
- Better control on stock of steel actually required.
- Better quality control at site.
- Better estimation of steel.
- Saves time and reduces labour.

## WORK FLOW



The Optimax window will be displayed as shown below



This window is used to make the best combination of bars from the BBS data . Here Optimax searches for the best combination in the given bar length and the margin with minimum wastage.

Following are the instructions given to activate each keys:

## 1. Settings:

- Use 'File' menu > 'Settings' to set general settings.

### Margin increment factor

This factor helps to reduce the wastage of bars while cutting the reinforcement.

### License Type

Optimax can be purchased with three types of license modes.

### Hardware Lock

Through a Hard Lock supplied with Optimax with a valid License period.

### Via web.

You can purchase Optimax through web, after registering [www.aadspro.com](http://www.aadspro.com). Your license will be validated through the web by your user name and password.

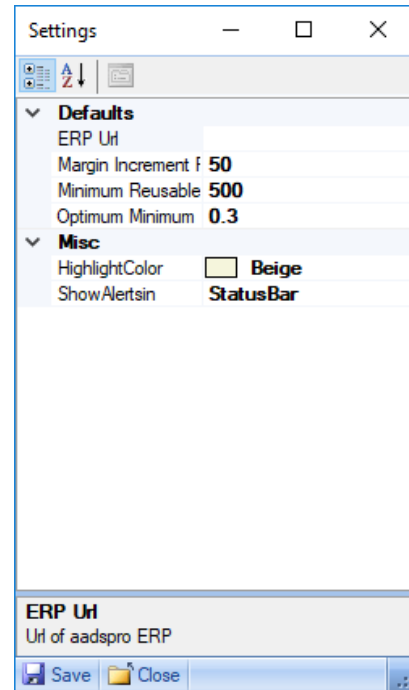
### License File

License is validated through a key supplied with Optimax.

### Highlight color

Users can set the alternate color of the grid which displays the details.

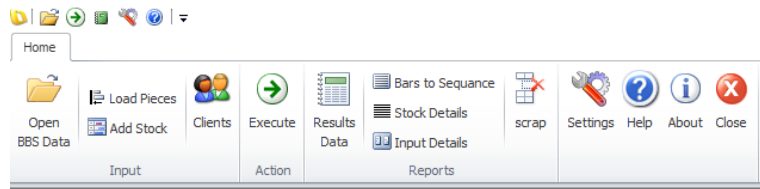
After selecting all the required options click on  save .



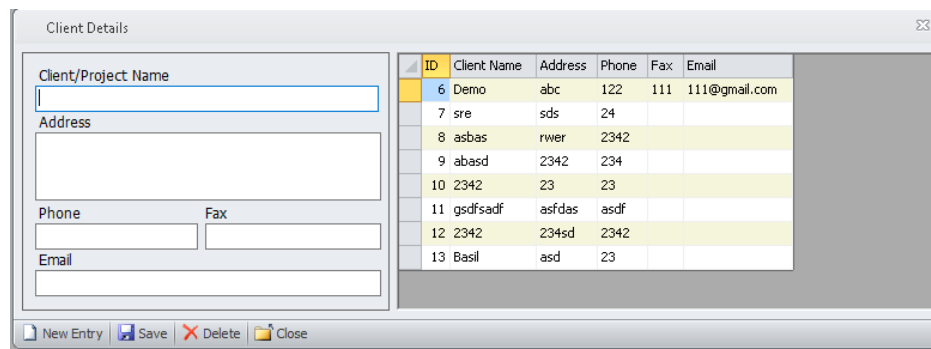
## 2. Client Details:

Here user can provide the details of client. Client detail will save automatically in the file. User can take the detail of the client saved in Optimax any time.

From the main menu you get the option for entering client detail

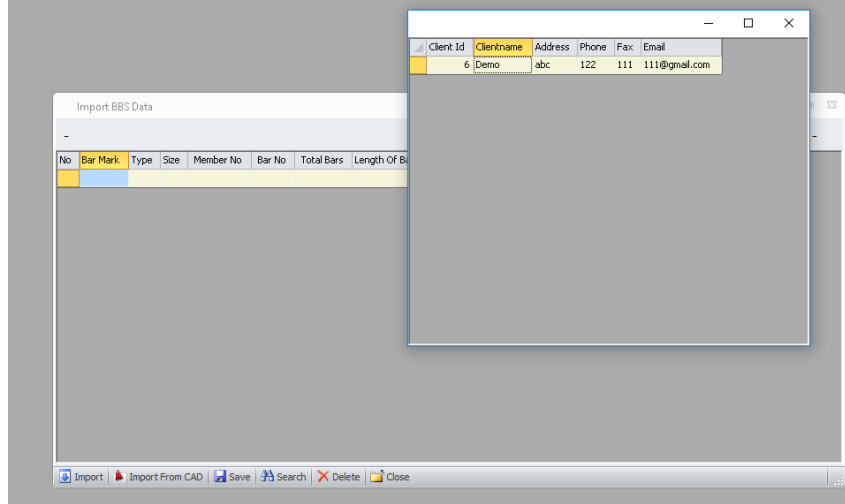



Client name, address, phone, mail id etc are to be entered. Then just save it and close.



### 3. Import BBS:

This command helps the user to import the bar bending schedule from Microsoft excel or from AutoCAD to Optimax window.



- Use File Menu > ‘Open BBS data
- Select the client name before start importing data.
- Import the required data from the BBS schedule, which includes the bar mark, bar length, shape codes etc.
- Select the file (Excel file) that contains the BBS details and import it.
- Enter the client details.
- Then save this by clicking  save button.


No	Bar Mark	Type	Size	Member No	Bar No	Total Bars	Length Of B	Shape Code	A	B	C	D	E	F
1	T		8	1	49	49	1850	20	1850					
2	T		8	1	19	19	4000	20	4000					
3	T		8	1	28	28	2500	20	2500					
4	T		8	1	6	6	2550	20	2530					
5	T		8	1	4	4	2600	20	2600					
6	T		8	1	14	14	2550	37	2490	60				
7	T		8	1	19	19	3275	20	3270					
8	T		8	1	11	11	2000	20	2000					
9	T		8	1	15	15	3425	20	3420					
10	T		8	1	8	8	2100	20	2100					
11	T		8	1	18	18	3900	20	3900					
12	T		8	1	18	18	2350	20	2350					
13	T		8	1	7	7	2250	20	2250					
14	T		8	1	13	13	3575	20	3570					
15	T		8	1	13	13	2150	20	2150					
16	T		8	1	6	6	2900	20	2900					
17	T		8	1	13	13	1700	20	1700					
18	T		8	1	15	15	3675	20	3660					
19	T		8	1	22	22	2200	20	2200					

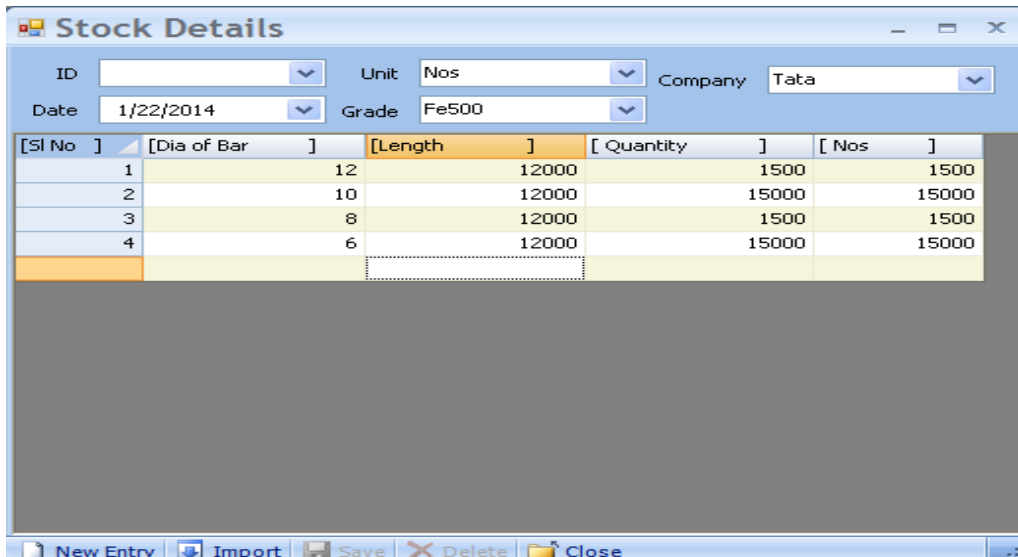


## 4. Stock Details:

This window helps the user to enter the Stock details of reinforcement. Stock Details window displayed as below.

Use File Menu > 'Import Stock', to input the stock details such as length of the bar, diameter and the quantity of the bars available.

- 'New' Button helps to enter new stock details.
- Select the unit, for the quantity of available reinforcement.
  - **Nos** - helps to enter the quantity of available reinforcement in numbers.
  - **Tonne** - helps to enter the quantity of available reinforcement in tonnage.
- Enter the grade of steel & Company.
- Enter the stock details of reinforcement such as Dia of bar, Length of bar & quantity in Tonne or in number.
- Then save it by clicking  save button.



The screenshot shows a software window titled "Stock Details". At the top, there are several dropdown menus: ID, Unit (set to "Nos"), Company (set to "Tata"), Date (set to "1/22/2014"), and Grade (set to "Fe500"). Below these is a table with the following data:

[SI No ]	[Dia of Bar ]	[Length ]	[ Quantity ]	[ Nos ]
1	12	12000	1500	1500
2	10	12000	15000	15000
3	8	12000	1500	1500
4	6	12000	15000	15000

At the bottom of the window, there is a toolbar with buttons for "New Entry", "Import", "Save", "Delete", and "Close".

## 5. Execute:

This command helps the user to cut the bars with minimum wastage by making the different combination of bars. In order to execute the process of cutting, follow the instructions below:

Select the client name to import the details of BBS. After that, execute window shows all the details that we have imported.

- Enter the Dia of bars, Grade of steel, company & Margin.

- Margin indicates the software to make the combination with given bar length having wastage up to this given margin. While entering the margin the user should keep in mind that the range of the value should start

The screenshot shows the Optimax software interface. On the left, there is an 'Inputs' panel with the following fields: Job ID (1), Client Name (S AND R CONSULTA), Dia (16), Grade of Steel (Fe500), Mfr (Tata), Margin (1225), and Use length (10500, 11000, 12000). Below these are options: Default (selected), Try for best Combination, Use one length at a time, Check all, and Select Random Lengths. At the bottom are buttons for Execute, Refresh, and Close. On the right, there are two tables. The top table is 'Bars TO Cut' with columns Length, Bar Mark, and Total Bars. The bottom table is 'Stock Available' with columns Diameter, Grade of Steel, Company, Stock Availabl, and length of Bar.

Length	Bar Mark	Total Bars
1225	420	22
1225	420	26
1825	412	16
1825	304	2
1825	412	1
1825	304	2
1825	304	2
1825	350	2
1825	412	16


Diameter	Grade of Steel	Company	Stock Availabl	length of Bar
16	Fe500	Tata	30000	12000
16	Fe500	Tata	10000	11000
16	Fe500	Tata	10000	10500

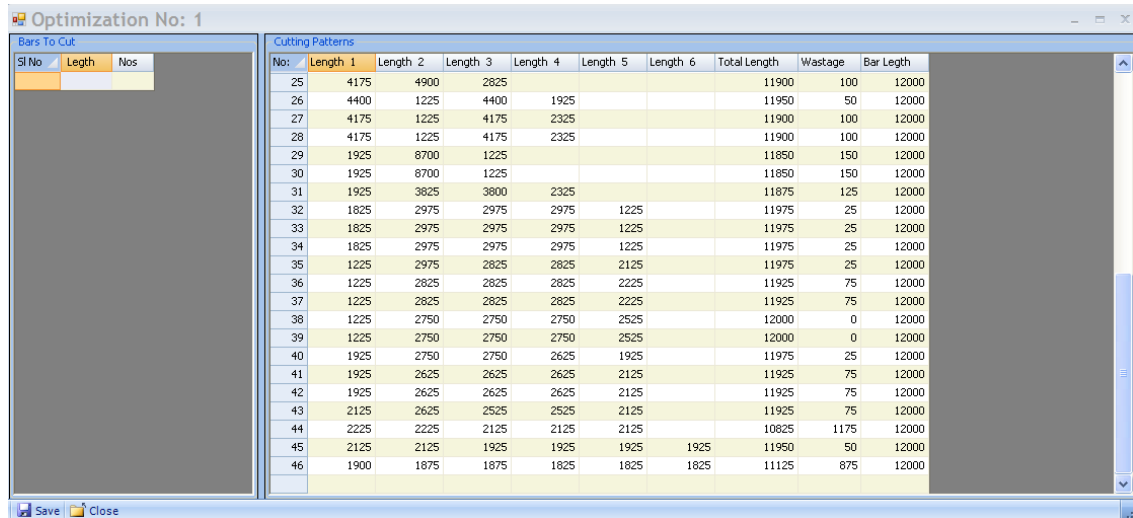
from zero to the required one. Eg. if the user gives a margin of '1250' and Bar Length of '12000' the software only search for the bars which can be exactly combined to length of 12000 like 3000 ,6000, 1750.

- Optimax gives three options to execute the cutting process of bars:

### a) Default :

System automatically gives the combination of bars by taking the available bars in stock. At the time of executing this, the bar length will be taken from the stock having minimum length first. Once the minimum stock is finished the software will automatically go for the next length and so on

After that execute it by pressing at  button and then total length of the bar used, total wastage, bars to cut can be shown as:




The screenshot shows a software window titled 'Optimization No: 1'. It contains two main tables. The 'Bars To Cut' table is currently empty. The 'Cutting Patterns' table lists various combinations of bar lengths and their associated total lengths and wastage.

No.	Length 1	Length 2	Length 3	Length 4	Length 5	Length 6	Total Length	Wastage	Bar Length
25	4175	4900	2825				11900	100	12000
26	4400	1225	4400	1925			11950	50	12000
27	4175	1225	4175	2325			11900	100	12000
28	4175	1225	4175	2325			11900	100	12000
29	1925	8700	1225				11850	150	12000
30	1925	8700	1225				11850	150	12000
31	1925	3825	3800	2325			11875	125	12000
32	1825	2975	2975	2975	1225		11975	25	12000
33	1825	2975	2975	2975	1225		11975	25	12000
34	1825	2975	2975	2975	1225		11975	25	12000
35	1225	2975	2825	2825	2125		11975	25	12000
36	1225	2825	2825	2825	2225		11925	75	12000
37	1225	2825	2825	2825	2225		11925	75	12000
38	1225	2750	2750	2750	2525		12000	0	12000
39	1225	2750	2750	2750	2525		12000	0	12000
40	1925	2750	2750	2625	1925		11975	25	12000
41	1925	2625	2625	2625	2125		11925	75	12000
42	1925	2625	2625	2625	2125		11925	75	12000
43	2125	2625	2525	2525	2125		11925	75	12000
44	2225	2225	2125	2125	2125		10825	1175	12000
45	2125	2125	1925	1925	1925	1925	11950	50	12000
46	1900	1875	1875	1825	1825	1825	11125	875	12000

‘Cutting Patterns’ plate: User can view the combination of bars, the total length and total wastage of the bars.

‘Bars to Cut’ plate: displays the bars that cannot be cut according to the given bar length and margin.

**b) Try for Best Combination:**

This option helps the user to take the best combination of bars to cut with minimum wastage. System gives the number of combination of bars; user can select the best combination from this. Execute it by pressing  button. Now the software displays the combination windows are as follows.

Here we can see that optimization 2: is the best combination having no wastage and all bars are used in cutting process.

**c) Use one length at time:**

Here system makes the combination of bars by using bars having the same length as shown below:

**Check all:**

This option used for selecting the length of available bars from the stock which is used for cutting process.

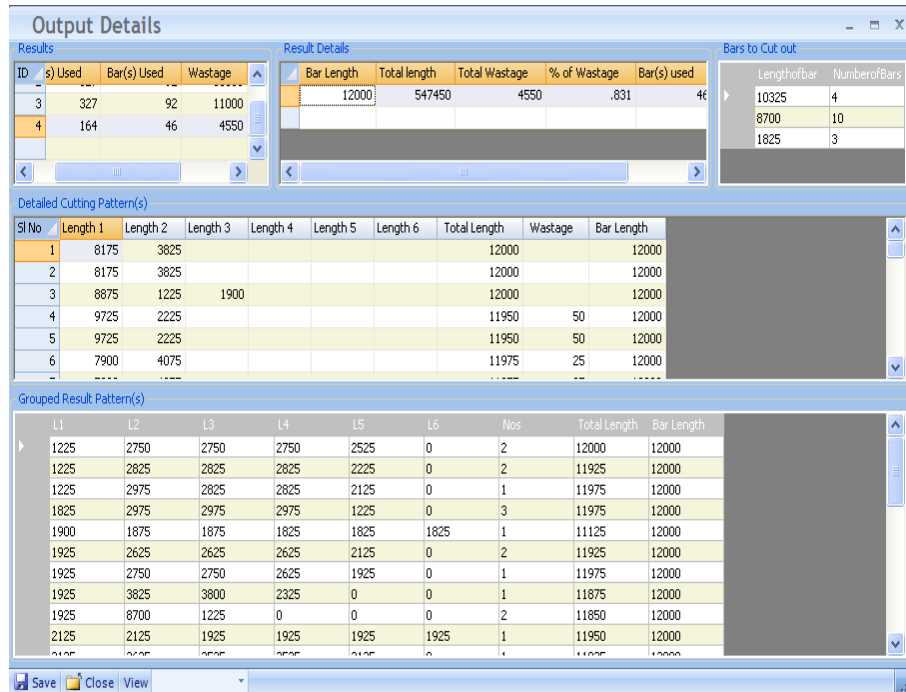
**Select Random length:**

Optimax gives the combination of bars by taking bars in random order.

**6. Output Details:**

This shows the summary of the results after the execution process. Summary window is as shown below:

- **Result plate** gives the details such as the number of bars & pieces used wastage & percentage of wastage.
- **Result Details** gives advanced details like total length of bars, Dia of bars etc.
- **Grouped Result Pattern** will display the grouped list of combinations in the current execution.
- The data in the right side displays the bars to be cut.
- These data can be exported to **Microsoft Excel** and **Text file**.



## 7. Stock Details :

Stock Details shows the current details of stock after executing the cutting process, as shown below:



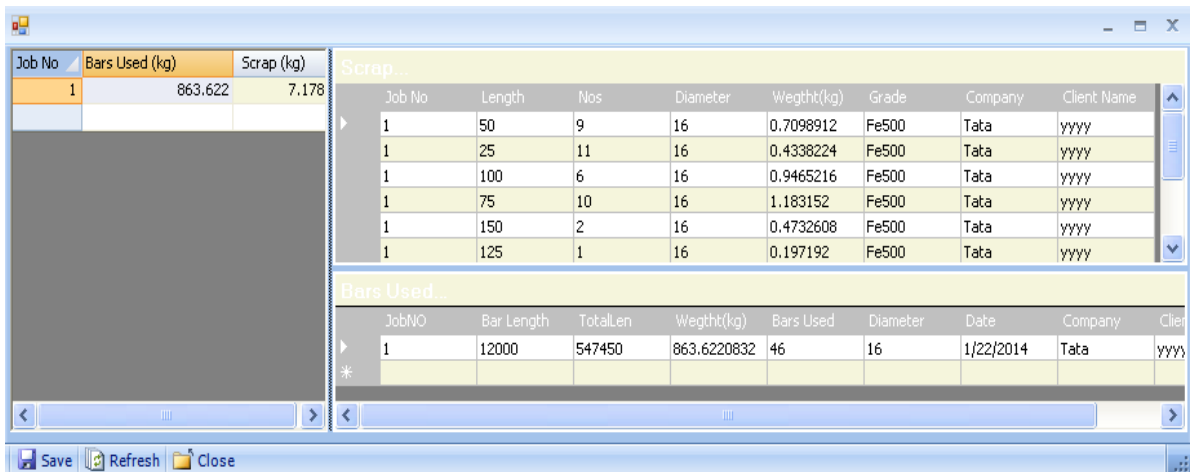
The screenshot shows a window titled "Current Stock" with a table of "Current Stock Available". The table has five columns: length of Bar, Stock Availabl, Dia of bar, Grade of Steel, and Company. The data rows are:

length of Bar	Stock Availabl	Dia of bar	Grade of Steel	Company
6000	2	16	Fe415	Tata
7500	1	16	Fe415	Tata
12000	4	16	Fe415	Tata

At the bottom of the window, there are "save" and "Close" buttons.

## 8. Scrap Details:

This command displays the details of scrap bars, as shown below:



The screenshot shows a window with two main sections: "Scrap ..." and "Bars Used ...".

The "Scrap ..." section contains a table with columns: Job No, Length, Nos, Diameter, Weght(kg), Grade, Company, and Client Name. The data rows are:

Job No	Length	Nos	Diameter	Weght(kg)	Grade	Company	Client Name
1	50	9	16	0.7098912	Fe500	Tata	yyyy
1	25	11	16	0.4338224	Fe500	Tata	yyyy
1	100	6	16	0.9465216	Fe500	Tata	yyyy
1	75	10	16	1.183152	Fe500	Tata	yyyy
1	150	2	16	0.4732608	Fe500	Tata	yyyy
1	125	1	16	0.197192	Fe500	Tata	yyyy

The "Bars Used ..." section contains a table with columns: JobNO, Bar Length, TotalLen, Weght(kg), Bars Used, Diameter, Date, Company, and Client Name. The data row is:

JobNO	Bar Length	TotalLen	Weght(kg)	Bars Used	Diameter	Date	Company	Client Name
1	12000	547450	863.6220832	46	16	1/22/2014	Tata	yyyy

At the bottom of the window, there are "Save", "Refresh", and "Close" buttons.