It's now September and you have completed the financial reports for Island Wheels Ltd. You were having lunch when you were approached by Mark and Patrick, the production supervisors. "Great job on the last report," Mark started. "There's something else that we need you to help us with. We are trying to determine how much materials we need to get for the next quarter. We always seem to either have way too much, or not enough. When we have too much, we logically order less for the next month. But then we run out and have to place an urgent order, which increases our costs."

"That's right," added Patrick. "John's fuming about how we always have to pay extra for the materials. Is there a way you can help us determine how much materials we should be ordering?"

"Sure," you replied. "That's what I am here for. I will have it to you by the end of the month."

As you walked off, you realise that you needed more information in order for you to prepare the information Mark and Patrick needed. And the first place to start is to first work out what materials were required for the bikes. You also needed to work out how many bikes were going to be produced. This is not getting any easier. You need to see Damian to find out the intended sales for the next quarter. You need more information from either Mark or Patrick about the materials used.

The next day, you went to see Mark and he provided you with the materials requirements for the bicycles (This can be found in Appendix A.) He also provided you additional information as follows:

- Steel alloy costs $250 per kilogram. This is generally a common alloy used by most manufacturers and is readily available from many different suppliers. The company has several suppliers of steel alloy that it uses and all of them charge the same price. Quality across the preferred suppliers is similar and as such, there is no one single supplier that comes across as being the best. As such, it has been decided that there is no necessity to have a large inventory of steel alloy. Therefore, the decision by top management is to hold only 5% of the next month's requirements in ending inventory every month. Currently there is 24 kg of the steel alloy in the opening inventory for October.

- Aluminium alloy costs $380 per kilogram. As with the steel alloy, aluminium alloy is also widely used and widely available. But because aluminium alloy usage is greater than steel alloy, it has been decided that ending inventory for aluminium alloy will have to be 10% of the next month's requirements. There will be 130 kg of aluminium alloy available at the beginning of October.

- Titanium alloy costs $720 per kilogram. Unlike steel and aluminium alloy, titanium alloy is more costly due to its scarcity. This is because of its light-weight and strength properties. As such, there have been times when the company did not have enough of the titanium alloy to produce additional bikes. Because of the scarcity of titanium alloy, it normally takes two months from ordering the titanium alloy to receipt of the order (i.e. if you order in January, you will only receive it in March). As such, it has been decided that the ending inventory for titanium alloy for any current month will be 35% of requirements for two months later (i.e. ending requirements for January will be 35% of March requirements). For October, this has not been met as there is only 25 kg of titanium alloy in the opening inventory.

- For all the different materials, purchases have to be in whole kilograms as the suppliers will not sell in less than whole kilogram amounts.

Having got the information from Mark, You proceeded to see Damian to get his sales forecasts for the next quarter. "Look," he says. "I am not sure how these numbers have been derived as I got it from John (See Appendix B). It looks pretty accurate to me, but as you know, my job is only about making sure the bikes roll off the floor. I do not know much about this budgeting nonsense. When you finish with your budget, could you also explain what things I need to consider, if and when I want to prepare a sales budget? So far, it just seems like numbers are being plucked from thin air and put into the sales target. I know it looks logical based on my experience, but what else do I need to consider? Should I just prepare the budget based on my experience?"

"Sure, I can do that," you replied. "I'll include it in my report for the next meeting."

"Well done. Thank you," Damian said as he departed. "Oh, and don't forget. John always wants at least 5% of stock on hand at all times. It applies to all the bikes."

As you were heading back to your office, Audrey, John's PA called out to you. "John would like to see you in his office," she said.

"Come in, have a seat," John said as you entered his office. "I have been offered a great proposition by Mechatron, you know, those machinery guys? They have suggested that since we made bicycles, maybe we should consider selling other bicycling related stuff as well, such as helmets. I think it sounds good, but I need to know whether it will be as profitable as they make it sound. Here are some of the numbers provided to me by Mechatron and our guys here."

You look at the document that was handed to you:

- Cost of renting Mechatron H688 (machine) per year - $450,000
- Cost of materials to produce helmets – $25.70 per unit
- Cost of one extra production supervisor – $85,000
- Cost of two extra production staff (Full-time) - $55,000 each
- Variable overhead cost - $ 14.30 per unit
- Fixed overhead cost -$46,200
- Variable marketing cost - $2.00 per unit
- Variable packaging cost per helmet - $5.00 per unit
- Expected sales (in units) – 3,000 per month
- Expected selling price (per unit) - $65.00

"Listen, mate, this looks too good to give up. Can you get back to me asap so that I can decide whether to go ahead with this proposal?" John said as he moved around his desk. "I also have something else I would like you to take a look at, as soon as I can find it," he said as he moved things around this already overloaded desk.

Then he pulled a document from a pile of papers and said, "Here it is! I am considering the possibility of producing our own seat posts. We have been buying the seat posts from UST Steel, but they have raised the price of seat posts recently and that's the third time they have done it this year alone. Even though we do not have experience in producing seat posts, it is just a seat post after all, and it should not be too difficult to make. At least we can control our costs then. But Mark thinks otherwise and this is his calculations. I think he is wrong but I need you to confirm it

for me. We already have the machinery and all we need is one extra staff. Shouldn't cost us too much to make it ourselves."

"Here, take this and tell me whether we should go ahead and produce our own seat posts," John said as he handed you the document (Appendix C).

"Look, I know you have a lot on your plate, but I really need all the information as soon as you can, like yesterday. So can you please get it done by the end of next week?" He said.

Well, there goes your weekend!

REQUIRED:
Prepare a report (no more than 10-pages) for John Cruise that addresses the following:

a) the amount of materials (steel alloy, aluminium alloy and titanium alloy) to be purchased for the months of October, November and December;

b) factors that Damian needs to consider when preparing a sales forecast (Minimum of four factors required);

c) calculation of the breakeven point for the proposed helmets and whether Island Wheels should proceed with the proposal of introducing helmets;

d) determine whether financially, Island Wheels should go ahead and produce the seat posts; and

e) factors to consider, other than financial, in deciding whether to produce helmets and seat posts (at least four factors to be identified).

Appendix A

Material Requirements for Bicycles

	Road	Trek	BMX
Steel Alloy	50gms	200gms	750gms
Aluminium Alloy	650gms	350gms	250gms
Titanium Alloy	150gms	450gms	0

Appendix B

Sales Forecasts

	October	November	December	January	February	March
Road Bikes	1600	1400	1800	1200	1300	1200
Trek Bikes	800	900	1200	1000	1100	940
BMX	300	300	500	260	300	400

Appendix C

Seat Posts Costings

Current purchase price per seat post	$76.00
Current purchase requirement per month	3,500
Direct material for 3,500 seat posts	$161,000
Direct labour	$52,500
Manufacturing overhead*	$78,750
General and administrative overhead[ŧ]	$15,750
	$308,000.00

** Manufacturing overhead is applied on the basis of direct-labour dollars. Variable overhead costs vary closely with direct-labour dollars.*

Fixed overhead ……	*50%*	*of direct-labour dollars*
Variable overhead ……	*100%*	*of direct-labour dollars*
Manufacturing overhead rate ……..	*150%*	*of direct-labour dollars*

[ŧ] General and administrative overhead is applied to all products on the basis of usage of space. For the proposed seat posts, this has been calculated as shown.