



# Financial Business Plan for SWEng Group Three Enterprise

Written by the Finance Manager for SWEng Group Three Enterprise.

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## Foreword:

It should be noted that the business plan is still pending final possible adjustments for labour hours from the Project Manager (however any adjustments will not result in a change in the total labour hours, only how these hours are distributed over the weeks, which should have minimal impact on the weekly closing balance forecast so far.

The reason why the Financial Business Plan has been resubmitted with a new estimated loan is due to an under-estimation of labour hours by the Project Manager, which has now been corrected in collaboration with all group members.

## Introduction:

This document will outline the financial plan for our company, including a cash flow forecast for the development phase of our product as well as a Gantt chart indicating how many hours of labour occur each week.

In this document our product will also be explained, and we will provide analysis of our costs in order to aid the financial advisor with their financial decision.

## Our Product: Hands Off:

- Hands Off is an app created to teach users about cooking. Aimed primarily towards android users between the ages of 18 and 30, the app provides:
  - Step-by-step recipes in a slideshow format.
  - Informative videos teaching the user basic cooking techniques.
  - A platform on which to 'favourite', share and create recipes, as well as the ability to interact with other users.
- The Unique Selling Points (USP's) of this app are:
  - When following a recipe in the app, the user will be able to use minimal movement to switch from one step to the next, either through use of tapping the screen or possibly through gesture/motion recognition.
  - The app will have a paid version, where there will be no adverts, exclusive access to regularly changing competitions, and giveaways and discounts on cooking and food related products and experiences.
  - The app is therefore available in both a free and a paid version. The paid version will be advert free, whereas the free version will contain banner adverts and interstitial adverts before the first step in any recipe.



### Information: Cash Flow Forecast-SWEng Group Three Enterprise:

The following assumptions have been made to produce the Cash Flow Forecast:

- For calculating the wages:
  - As stated by the Project Manager, it is assumed employees will work on a more flexible schedule than previously described, more akin to zero-hour contracts, in order to ensure that deadlines are met. This is realistic, since our group is a start-up and so those who are employees will likely be more invested in the success of the product and enterprise than if they were to work for a larger company.
  - It is assumed that all employees have an initial month-long trial period, after which they are paid on a weekly basis (ie: all employees are paid from the week in which the first loan payment is received onwards).
- For loan interest calculations:
  - As per recommendation from the Financial Adviser, compound interest has been utilised.
  - A prudent view has been adopted for the size of the loan required. This means the amount needed has been over rather understated in order to cover possible unforeseen expenses.
- For calculating the financial value for the contracts:
  - It has been assumed that at this stage no code signing is necessary for the purchase and selling of contracts.
  - It is assumed only two of the media will be bought-in/licensed.
  - It has been assumed that the app used as a reference uses all 6 forms of media described by the customer.
  - It is assumed the placement of the contract, the handover of the module code and the acceptance of the module by the purchaser group all occur between the deadline for all contracts to be agreed and filed and the first iteration (weeks of 26/2/2018, 5/3/2018 and 12/3/2018 respectively).
  - It is assumed the acceptance of the module by the purchaser group occurs in the week following the week in which the code is handed over.
  - It is assumed all contracts and payments are completed/made prior to the First Iteration deadline in week of 12/3/2018.
  - It is assumed the cost of buying/licensing the code for the other two media is equal to the value at which our company sells the code we create for two media to other groups, and hence not impacting the closing balance.
  - It is assumed the conversion rate used to convert the example price for the developer license of a typical multimedia app in Java and is accurate.
  - It is assumed the cost of any code modules bought-in or licensed is the same.
- Other assumptions made include:
  - The loan will be awarded.
  - The loan can be split into two payments in a ratio that is most beneficial for the group.
  - Rounding most numbers to the nearest penny is sufficiently accurate (and to four decimal places for the percentage of weekly interest used in the compound interest calculations).
  - Interest is not an overhead.
  - The "app development" activity in the Work Breakdown Structure includes the time taken to write the code being sold to other groups/companies.

### Information: Wages:

- The following information, courtesy of the Project Manager, was used to calculate the wages per job role per week.
- It is assumed that all employees, including the Project Manager, will work as software engineers in order to reduce the number of employees required, and to ensure that the product is created within the deadlines provided by the customer, however for the Work Breakdown Structure each employee has their own section, rather than the Work Breakdown Structure following a chronological approach, and so now there is no separate role for any of the following documents.
- Please note that the Work Plan is found in Appendix A, and the Gantt Chart in Appendix B.

### Work Breakdown Structure:

SWEng_test							
ID	Task Mode	WBS	Task Name	Duration	Work	Start	Finish
1		1	Meetings		144 hrs		Mon 08/01/18
20		2	Documentation	54.5 days	87 hrs	Mon 08/01/18	Wed 14/02/18
21		2.1	Generate Functional Specification Doc	5.5 days	39 hrs	Mon 08/01/18	Wed 10/01/18
22		2.1.1	Generate sections of functional spec doc	16 hrs	30 hrs	Mon 08/01/18	Tue 09/01/18
23		2.1.2	Compile Functional Specification Doc	6 hrs	9 hrs	Wed 10/01/18	Wed 10/01/18
24		2.2	Generate QA Manual	4.25 days	31 hrs	Wed 10/01/18	Fri 12/01/18
25		2.2.1	Generate QA Roles and Responsibilities section	2 hrs	16 hrs	Wed 10/01/18	Wed 10/01/18
26		2.2.2	Compile QA Manual	15 hrs	15 hrs	Thu 11/01/18	Fri 12/01/18
27		2.3	Generate WBS, GANNT & PERT	16 hrs	16 hrs	Fri 12/01/18	Tue 16/01/18
28		2.4	Negotiate Inter-Group Contracts	1 hr	1 hr	Wed 14/02/18	Wed 14/02/18
29							
30		3	Finance	184.75 days	235 hrs	Mon 08/01/18	Wed 16/05/18
31		3.1	Generate Financial Business Plan	60 hrs	60 hrs	Mon 08/01/18	Wed 17/01/18
32		3.2	Generate Financial Report 1	35 hrs	35 hrs	Tue 30/01/18	Mon 05/02/18
33		3.3	Generate Financial Report 2	35 hrs	35 hrs	Fri 23/02/18	Thu 01/03/18
34		3.4	Generate Financial Report 3	40 hrs	40 hrs	Fri 16/03/18	Fri 23/03/18
35		3.5	Generate Financial Summary Report	65 hrs	65 hrs	Fri 04/05/18	Wed 16/05/18
36							
37		4	Research & Design	215.75 days	250.02 hrs	Fri 12/01/18	Wed 13/06/18
38		4.1	Research and analyze market	20 hrs	20 hrs	Fri 12/01/18	Wed 17/01/18
39		4.2	Research advertisement revenue	8 hrs	8 hrs	Thu 18/01/18	Fri 19/01/18
40		4.3	Develop sales strategies	10 hrs	10 hrs	Mon 05/02/18	Tue 13/03/18
41		4.4	Design	85.75 days	122.02 hrs	Fri 12/01/18	Wed 14/03/18
42		4.4.1	Generate app mockups	34.62 hrs	33.02 hrs	Fri 12/01/18	Fri 19/01/18
43		4.4.2	Design Logo	5 hrs	5 hrs	Mon 22/01/18	Mon 22/01/18
44		4.4.3	Generate Icons for App	20 hrs	20 hrs	Mon 29/01/18	Wed 31/01/18
45		4.4.4	Source Media for App	40 hrs	40 hrs	Wed 31/01/18	Wed 14/03/18
46		4.4.5	Generate consumer user stories	12 hrs	12 hrs	Fri 12/01/18	Tue 16/01/18
47		4.4.6	Create class diagrams	12 hrs	12 hrs	Tue 16/01/18	Wed 17/01/18
48		4.5	Create Tender Presentation	17 hrs	40 hrs	Mon 12/02/18	Wed 14/02/18
49		4.6	Create Product Demonstration Presentation	20 hrs	50 hrs	Mon 11/06/18	Wed 13/06/18
50							
51		5	Development	184.5 days	924 hrs	Thu 01/02/18	Mon 11/06/18
52		5.1	Software	98.5 days	870 hrs	Thu 01/02/18	Wed 11/04/18
53		5.1.1	GUI Development	74.5 days	150 hrs	Thu 01/02/18	Mon 26/03/18
54		5.1.1.1	Prototype GUI Development	100 hrs	100 hrs	Thu 01/02/18	Mon 19/02/18
55		5.1.1.2	Final GUI Development	50 hrs	50 hrs	Fri 16/03/18	Mon 26/03/18
56		5.1.2	App Development	98.5 days	720 hrs	Thu 01/02/18	Wed 11/04/18
57		5.1.2.1	Prototype App Development	255 hrs	500 hrs	Thu 01/02/18	Fri 16/03/18
58		5.1.2.2	Final App Development	139 hrs	220 hrs	Fri 16/03/18	Wed 11/04/18
59		5.2	Testing & Analysis	37.25 days	54 hrs	Mon 19/02/18	Fri 16/03/18
60		5.2.1	GUI Testing	8 hrs	8 hrs	Mon 19/02/18	Tue 20/02/18
61		5.2.2	System Testing	30 hrs	30 hrs	Thu 08/03/18	Wed 14/03/18
62		5.2.3	Perform & gather consumer feedback	16 hrs	16 hrs	Wed 14/03/18	Fri 16/03/18
63							
64		6	DELIVERABLES		0 hrs		
65		6.1	Functional Specification to Supervisor	0 days	0 hrs	Fri 02/02/18	Fri 02/02/18
66		6.2	QA Manual uploaded to group repository. PDF emailed to supervisor	0 days	0 hrs	Mon 05/02/18	Mon 05/02/18
67		6.3	Financial Business Plan for AEW and SJP	0 days	0 hrs	Fri 09/02/18	Fri 09/02/18
68		6.4	Project Wide Standards agreed between groups	0 days	0 hrs	Thu 15/02/18	Thu 15/02/18
69		6.5	Group tender presentations	0 days	0 hrs	Mon 19/02/18	Mon 19/02/18
70		6.6	Financial Report I	0 days	0 hrs	Fri 23/02/18	Fri 23/02/18
71		6.7	All contracts agreed and filed	0 days	0 hrs	Tue 27/02/18	Tue 27/02/18
72		6.8	Financial Report II to AEW	0 days	0 hrs	Fri 09/03/18	Fri 09/03/18
73		6.9	First Iteration Complete	0 days	0 hrs	Fri 16/03/18	Fri 16/03/18
76		6.12	Financial Summary Report	0 days	0 hrs	Fri 25/05/18	Fri 25/05/18
77		6.13	Demonstration and Sales presentations	0 days	0 hrs	Mon 04/06/18	Mon 04/06/18
78		6.14	Hand-in of all deliverables	0 days	0 hrs	Thu 07/06/18	Thu 07/06/18

Resource Plan:

Resource Name	Work (hrs) Wages(£)																										
	Total	08-Jan		15-Jan		22-Jan		29-Jan		05-Feb		12-Feb		19-Feb		26-Feb		05-Mar		12-Mar		19-Mar		26-Mar		02-Apr	
Project Manager	307.2	0	£0.00	29	£362.50	13	£162.50	5	£62.50	25	£312.50	25	£312.50	17.4	£217.50	14	£175.00	10.8	£135.00	6.8	£85.00	24	£300.00	19.2	£240.00	15	£187.50
QA & Documents Manager	175.48	0	£0.00	22	£275.00	24	£300.00	2.35	£29.38	9.12	£114.00	9.12	£114.00	10.12	£126.50	8.77	£109.63	3.2	£40.00	6	£75.00	6	£75.00	6	£75.00	18.13	£226.63
Software Manager	350	0	£0.00	19	£237.50	13	£162.50	6	£75.00	31	£387.50	31	£387.50	32	£400.00	32	£400.00	20	£250.00	8	£100.00	30	£375.00	30	£375.00	30	£375.00
Design Manager	145.4	0	£0.00	15	£187.50	23	£287.50	8	£100.00	10.6	£132.50	10.6	£132.50	11.6	£145.00	3.6	£45.00	2	£25.00	2	£25.00	9.6	£120.00	9.6	£120.00	0.8	£10.00
Finance Manager	337.58	0	£0.00	29	£362.50	43	£537.50	32.3	£403.75	38.83	£485.38	15.83	£197.88	10.62	£132.75	31	£387.50	8	£100.00	32	£400.00	9.2	£115.00	6	£75.00	26.8	£335.00
Multimedia & Content Manager	202	0	£0.00	23	£287.50	29	£362.50	26	£325.00	7	£87.50	13	£162.50	14	£175.00	12	£150.00	2	£25.00	5	£62.50	15	£187.50	7	£87.50	0	£0.00
GUI Developer	162	0	£0.00	3	£37.50	3	£37.50	1	£12.50	25	£312.50	25	£312.50	25	£312.50	2	£25.00	2	£25.00	2	£25.00	24	£300.00	24	£300.00	2	£25.00
Marketing Manager	178	0	£0.00	33	£412.50	19	£237.50	2	£25.00	7	£87.50	7	£87.50	8	£100.00	8	£100.00	7	£87.50	3.2	£40.00	6	£75.00	6	£75.00	6	£75.00
Total	1857.66	0	£0.00	173	£2,162.50	167	£2,087.50	82.65	£1,033.13	153.55	£1,919.38	136.55	£1,706.88	128.74	£1,609.25	111.37	£1,392.13	55	£687.50	65	£812.50	123.8	£1,547.50	107.8	£1,347.50	98.73	£1,234.13
Total Cost of Labour	£23,220.75																										

Resource Name	Work (hrs) Wages(£)																				
	Total	09-Apr		16-Apr		23-Apr		30-Apr		07-May		14-May		21-May		28-May		04-Jun		11-Jun	
Project Manager	307.2	17	£212.50	30	£375.00	24	£300.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	20	£250.00
QA & Documents Manager	175.48	24.67	£308.38	12	£150.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	0	£0.00
Software Manager	350	30	£375.00	24	£300.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	0	£0.00
Design Manager	145.4	17	£212.50	8	£100.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	0	£0.00
Finance Manager	337.58	30	£375.00	11	£137.50	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	0	£0.00
Multimedia & Content Manager	202	23	£287.50	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	10	£125.00
GUI Developer	162	8	£100.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	0	£0.00
Marketing Manager	178	10.6	£132.50	29.2	£365.00	14	£175.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	2	£25.00	0	£0.00
Total	1857.66	160.27	£2,003.38	118.2	£1,477.50	50	£625.00	16	£200.00	16	£200.00	16	£200.00	16	£200.00	16	£200.00	16	£200.00	30	£375.00
Total Cost of Labour	£23,220.75																				

### Information: Contracts:

- Whilst the contracts values have no impact on the group's Cash Flow Forecast for the development phase of the app, in order to choose an accurate value I carried out online research and found an e-commerce app on Binpress [1] (See Appendix C for a hard copy of the webpage) that, whilst not being exactly the same as our product, comply with the requirements from the customer and was created for an Android platform in Java.
- The app's Developer License was \$499.99, and using the current currency conversion rates from USD to GBP, the Developer License was £384.34
- Using the previously mentioned assumption that the app's that we are using as a reference for pricing contracts utilises all 6 forms of media described by the customer:

- $\frac{384.34}{6} = £64.05\dot{6}$  per form of media.

- Therefore, we believe the cost of licensing/buying-in two forms of media is

$$2(£64.05\dot{6}) = £128.11\dot{2} = £128.11 \text{ (rounded to the nearest whole penny)}$$

[1]"E-Commerce Android App | Java | Android", *Binpress*, 2018. [Online]. Available: <http://www.binpress.com/app/ecommerce-android-app/4363>. [Accessed: 09- Feb- 2018].

[2]"Currency Converter – Google Finance", *Finance.google.com*, 2018.[Online]. Available: <https://finance.google.com/finance/converter>. [Accessed: 09- Feb- 2018].



### Information: Interest and Estimated Loan Required:

- Assuming, as mentioned previously, that compound interest is used, and using the 16.86% APR, the estimated loan required would be:
  - Closing Balance at the end of the development phase, without interest = £41,977.28 according to the cash flow forecast.
  - Closing Balance at the end of the development phase, with interest = £44,082.93 according to the cash flow forecast.
  - Therefore, the estimated loan required would be £45,000.

This estimate has been rounded up to account for possible unforeseeable excess expenditure.

- Also, as mentioned in the assumptions section, it has been assumed that the ratio of the amounts of the loan paid can be changed in order to be most beneficial for the company, and so it's assumed that, for an estimate of £45,000, the loan's payments can be split into:
  - £30,000 = the first loan payment.
  - £15,000 = the second loan payment.
- The weekly interest percentage used in our cash flow forecast for the development phase is:
  - The formula used is:
    - Compound Interest Rate = CIR =  $(1+r)^{52} - 1 = 16.86\%$  (The CIR has been given.)
    - $r$  = the weekly interest percentage.
  - Therefore,  $r = \sqrt[52]{(0.1686 + 1)} - 1 = 0.003000771234 \dots = 0.30008\%$  (rounded to 5 decimal places).

Information: Overhead Recovery Rate Analysis:

- The following table shows our cumulative Overhead Recovery Rate forecast for the development phase of our product:

Week Commencing	Total Overheads (£)	Cumulative Total Overheads (£)	Direct Labour Hours	Cumulative Direct Labour Hours	Cumulative Overhead Recovery Rate (£ per Hour)
8/1/2018			No direct labour hours this week.		
15/1/2018	0.00	0.00	0	0.00	0.00
22/1/2018	0.00	0.00	173	173.00	0.00
29/1/2018	2,530.77	2,530.77	167	340.00	7.44
5/2/2018	0.00	2,530.77	82.65	422.65	5.99
12/2/2018	900.00	3,430.77	153.55	576.2	5.95
19/2/2018	1,898.08	5,328.85	136.55	712.75	7.48
26/2/2018	0.00	5,328.85	128.74	841.49	6.33
5/3/2018	0.00	5,328.85	111.37	952.86	5.59
12/3/2018	2,498.08	7,826.93	55	1007.86	7.77
19/3/2018	0.00	7,826.93	65	1072.86	7.30
26/3/2018	0.00	7,826.93	123.8	1196.66	6.54
2/4/2018	0.00	7,826.93	107.8	1304.46	6.00
9/4/2018	0.00	7,826.93	98.73	1403.19	5.58
16/4/2018	0.00	7,826.93	160.27	1563.46	5.01
23/4/2018	0.00	7,826.93	118.2	1681.66	4.65
30/4/2018	0.00	7,826.93	50	1731.66	4.52
7/5/2018	5,061.54	12,888.47	16	1747.66	7.37
14/5/2018	0.00	12,888.47	16	1763.66	7.31
21/5/2018	1,500.00	14,388.47	16	1779.66	8.08
28/5/2018	1,898.08	16,286.55	16	1795.66	9.07
4/6/2018	0.00	16,286.55	16	1811.66	8.99
11/6/2018	0.00	16,286.55	16	1827.66	8.91
18/6/2018	2,498.08	18,784.63	30	1857.66	10.11

- Therefore, it is clear that the Overhead Recovery Rate for our product remains below £11 per hour throughout product development.

## Summary:

- We are SWEng Group Three (SG3) Enterprise, and our product Hands Off is an innovative app aimed towards young adults to provide them with recipes, cooking tips and exclusive deals, discounts and giveaways as well as the ability to complete recipes with minimal use of their hands.
- Our estimated loan required would be £45,000, preferably paid in the form of £30,000 in the first instalment and £15,000 in the second instalment.