SOFTWARE PROJECT MANAGEMENT
TUTORIAL LETTER 202
FOR
INF3708

ASSIGNMENT 02 SOLUTION

Assignment 02: Due date - 05th September 2017

Unique nr: 890342
Marks weight: 20%

ASSIGNMENT 02 - SEMESTER 2

ASSIGNMENT 02	
Due date	5th September 2017
Study material	Hughes & Cotterell: Chapters 2 and 3
Total marks	40 marks = 100%

If your assignment is late, please DO NOT PHONE OR E-MAIL asking for an extension but include a note in your assignment stating the reason for the late submission and we will decide whether or not it will be marked.

Instructions:

1. Complete this assignment and submit online in a .pdf format by performing the calculations.

2. The following unique number has to be assigned to the assignment:

UNIQUE NUMBER:
890342

3. Show all your working (calculations).

4. This assignment consists of 5 questions.

QUESTIONS AND ANSWERS FOR ASSIGNMENT 02:

QUESTIONS 1 **[8 marks)**

1.1 In your own words explain what is: (2)

Project management
Project portfolio management

Answer

Project management: Is the application of knowledge, skills, tools and techniques to project activities, in order to meet specific goals and project requirements. Project management is managed by a **project manager**.

A project manager must strive to meet specific scope, time, cost, and quality of projects, as well as facilitating the entire process of meeting the needs and expectations of people involved in project activities or affected by them.

Project portfolio management: provides an overview of all the projects that an organization is undertaking or is considering. It is a process in which organisations group and manage projects as a portfolio of investments that contribute to the entire success of the organization. Project portfolio management is managed by **portfolio manager.**

Project portfolio management helps organisations make wise investment decisions by helping them to select and analyse projects from a strategic perspective.

It helps prioritize the allocation of resources to projects and decide which new projects should be accepted and which existing ones should be dropped.

1.2 How would you differentiate between project management and project portfolio management? (6)

Answer

Project management	Project portfolio management
Project management focus on meeting **tactical goals** of the organisations. Tactical goals are more specific and short-term goals.	portfolio management addresses **strategic goals**. Strategic goals are generally known as the long-term goals of an organisation
Project management addresses questions such as: Are we carrying out projects well? Are projects on time and on budget? Do project stakeholders know what they should be doing?	Project portfolio management addresses questions like: Are we working on the right project? Are we investing in the right areas? Do we have the right resource to be competitive?
Project management is managed by a **project manager**	Project portfolio management is managed by a **portfolio manager**

QUESTIONS 2 **[32 marks]**

The cash flows of Projects 1, 2 and 3 is given in the table below (in ZAR, South African rand, R):

Year	Project 1	Project 2	Project 3
0	**- R 175 000**	**- R 150 000**	**- R 300 000**
1	**+ R 15 000**	**+ R 5000**	**+ R 30 000**
2	**+ R 20 000**	**+ R 15 000**	**+ R 30 000**
3	**+ R 50 000**	**+ R 20 000**	**+ R 50 000**
4	**+ R 50 000**	**+ R 30 000**	**+ R 120 000**
5	**+ R 50 000**	**+ R 60 000**	**+ R 120 000**
6	**+ R 50 000**	**+ R 90 000**	**+ R 120 000**

Table of cash flows for Project 1, 2 and 3

Use this information to calculate the **Net Profit**, the **Return on Investment** (ROI), the **payback period** and the **Net Present Value** at 10% for **each** of these projects. Then answer Questions 1 – 5.

1. Calculate the Net Profit for each project. (6 marks)

Answer: (2 marks @ project for correct answers)

YEAR	PROJECT 1	PROJECT 2	PROJECT 3
0	- R 175 000	- R 150 000	- R 300 000
1	+ R 15 000	+ R 5000	+ R 30 000
2	+ R 20 000	+ R 15 000	+ R 30 000
3	+ R 50 000	+ R 20 000	+ R 50 000
4	+ R 50 000	+ R 30 000	+ R 120 000
5	+ R 50 000	+ R 60 000	+ R 120 000
6	+ R 50 000	+ R 90 000	+ R 120 000
Net Profit	**Project 1: R60000**	**Project 2: R70000**	**Project 3: R170000**

2. Calculate the Return on Investment for each project. (6 marks)

Answer: (2 marks @ project for correct answers; calculations must be shown)

Return on Investment for projects 1, 2 & 3 respectively (rounded to 2 decimal places):

Return on Investment	PROJECT 1	PROJECT 2	PROJECT 3
$\frac{\text{Average Annual Profit}}{\text{Total Investment (value at year 0)}}$ **x 100**	5.71%	7.78%	9.44%

Project 1 = ((60 000/6)/175 000)*100 = **5.71%**

Project 2 = ((70 000/6)/150 000)*100 = **7.78%**

Project 3 = ((170 000/6)/300 000)*100 = **9.44%**

3. Calculate the Payback Period for each project. (6 marks)

Answer: (2 marks @ project for correct answers)
Project 1
Payback period = breakeven year – (profit made in breakeven year/ income in breakeven year)
= 5-(10 000/ 50 000)
= **4.8 years**

Project 2
Payback period = breakeven year – (profit made in breakeven year/ income in breakeven year)
= 6-(70 000/ 90 000)
= **5.2 years**
Project 3
Payback period = breakeven year – (profit made in breakeven year/ income in breakeven year)
= 5-(50 000/ 120 000)
= **4.6 years**

4. Calculate the Net Present Value for each project. (12 marks)

Answer: (4 marks @ project for correct answers; calculations must be shown to earn full marks) – it is advisable that you use the discount factor table provided in the prescribed textbook. Such discount factor table will be provided in exams in case a question on Net Present value is asked.

Year	Discount factor @ 10%	Project 1	Project 1 Discounted Cash flow (Rand)	Project 2	Project 2 Discounted Cash flow (Rand)	Project 3	Project 3 Discounted Cash flow (Rand)
0	1,0000	-R 175 000	-R 175 000,00	-R 150 000	-R 150 000,00	-R 300 000	-R 300 000,00
1	0,9091	R 15 000	R 13 636,50	R 5 000	R 4 545,50	R 30 000	R 27 273,00
2	0,8264	R 20 000	R 16 528,00	R 15 000	R 12 396,00	R 30 000	R 24 792,00
3	0,7513	R 50 000	R 37 565,00	R 20 000	R 15 026,00	R 50 000	R 37 565,00
4	0,6830	R 50 000	R 34 150,00	R 30 000	R 20 490,00	R 120 000	R 81 960,00
5	0,6209	R 50 000	R 31 045,00	R 60 000	R 37 254,00	R 120 000	R 74 508,00
6	0,5645	R 50 000	R 28 225,00	R 90 000	R 50 805,00	R 120 000	R 67 740,00
NPV (Rand)			-R 13 850,50		-R 9 483,50		R 13 838,00

Illustrations:

Project 1
Net Present Value = -175 000*1 + 15 000*0.9091 + 20 000*0.8264 + 50 000*0.7513 + 50 000*0.6830 + 50 000*0.6209 + 50 000*0.5645

= -175 000 + 13636.5 + 16528 + 37565 +34150 +31045 +28225
= **-R13850.5**
Project 2
Net Present Value = -150 000*1 + 5000*0.9091 + 15 000*0.8264 + 20 000*0.7513 + 30 000*0.6830 + 60 000*0.6209 + 90 000*0.5645

= -150 000 + 4545.5 + 12396 + 15026 +20490 +37254 + 50805
= **-R9483.5**
Project 3
Net Present Value = -300 000*1 + 30 000*0.9091 + 30 000*0.8264 + 50 000*0.7513 + 120 000*0.6830 + 120 000*0.6209 + 120 000*0.5645

= -300 000 + 27273 + 24792 + 37565 + 81960 +74508 +67740
= **R13838**

5. Based on your calculation of the individual NPV of each project in question 4 above, which project would you select to develop? (2 marks)

Answer:

Project 3: positive / highest NPV