Birla Institute of Technology & Science, Pilani
Work Integrated Learning Programmes Division
Second Semester 2022-2023

Mid-Semester Test
(EC-2 Regular)

Course No.   : SE ZG685
Course Title   : Software Product Management
Nature of Exam   : Open Book
Weightage   : 30%
Duration   : 2 Hours
Date of Exam   : Mar 2023

| No. of Pages   = 4 |
| No. of Questions = 9 |

Note to Students:
1. Please follow all the *Instructions to Candidates* given on the cover page of the answer book.
2. All parts of a question should be answered consecutively. Each answer should start from a fresh page.
3. Assumptions made if any, should be stated clearly at the beginning of your answer.

Q1. Set A. Which approach was used for product discovery in case of Apple iPod - an inside-out approach or outside-in approach? Why do you say that?   [2]

Outside In
Sony Walkmann influenced Apple to develop iPOD.
Portable MP3 players had existed since the mid-1990s, but Apple found existing digital music players "big and clunky or small and useless" with user interfaces that were "unbelievably awful". They also identified weaknesses in existing models' attempt to negotiate the trade-off between capacity and portability; flash memory-based players held too few songs, while the hard drive based models were too big and heavy. To address these deficits, the company decided to develop its own MP3 player. The first version was released on October 23, 2001

Q1. Set B. Which approach was used by Byju's inside-out approach or outside-in approach? Why do you say that?   [2]

Inside Out

Byju, an engineer by profession was coaching students in mathematics since 2006.

Think and Learn Pvt. Ltd, a company was established in 2011. In initial days the company focused on offering online video-based learning programs for the K-12 segment and for competitive exams.

In August 2015, the firm launched Byju's: The Learning App. In 2017, they launched Byju's Math App for kids and Byju's Parent Connect app. By 2018, it had 15 million users out of which 900,000 were paid users at that time. In the same year, Byju's became India's first edtech unicorn.

Q2. Set A. Considering Peter Drucker's sources of innovation, which source of innovation led to Rivigo? Justify your answer.   [2]

Founder and his team met truck owners and found that the problem lay with truck driver availability. Around this time McKinsey and the National Skill Development Corporation (NSDC) also happened to conduct a joint study to identify where India most needed skilled jobs. Logistics and construction emerged as the top sectors.

Rivigo matches with below (highlighted) sources of innovation.

- Unexpected occurrences. These often include failures. ...
- Incongruities. ...
- Process needs. ...
- Industry and market changes. ...
- Demographic changes. ...
- Changes in perception. ...
- New knowledge.

Q2. Set B. Considering Peter Drucker's sources of innovation, which source of innovation led to SalesForce.com? Justify your answer. [2]

Salesforce.com, provider of customer relationship management (CRM) on-demand services deployed through the Internet. Salesforce.com was founded in 1999 by American entrepreneur Marc Benioff as an alternative to the traditional business practice of purchasing and maintaining extensive computer hardware and software systems.

SalesForce matches with below (highlighted) sources of innovation.

- Unexpected occurrences. These often include failures. ...
- Incongruities. ...
- Process needs. ...
- Industry and market changes. ...
- Demographic changes. ...
- Changes in perception. ...
- New knowledge.

Q3. Set A. Illustrate the bottom 3 layers of product-market fit pyramid of Gaana.com offering. [3]
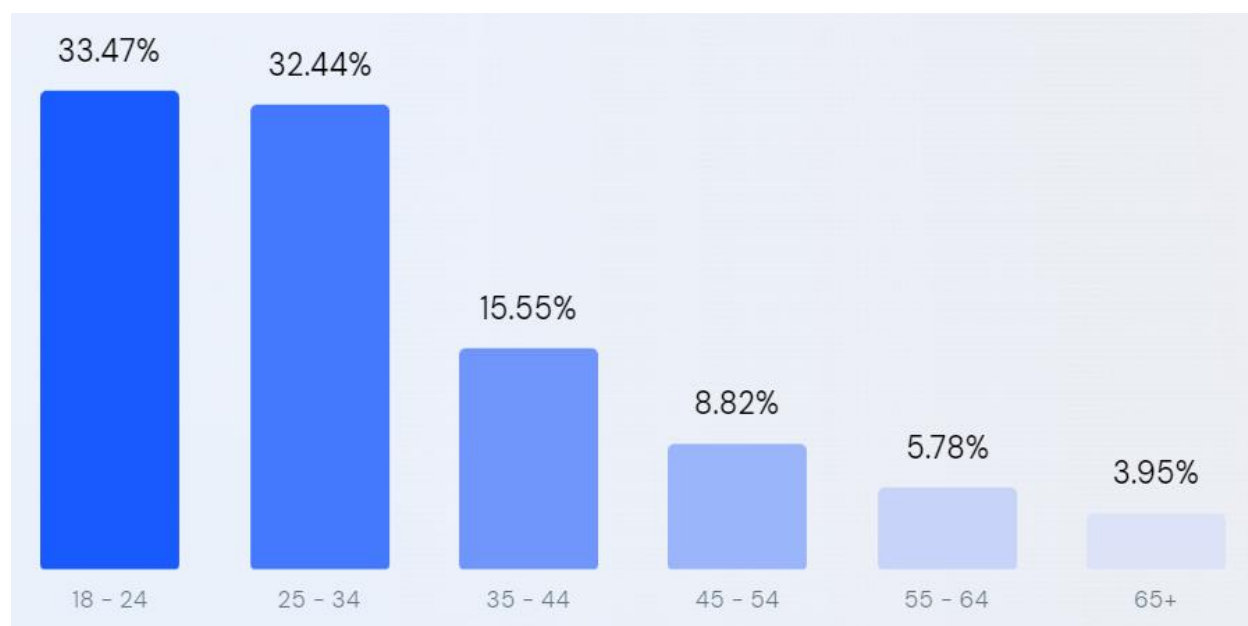
your target customer:
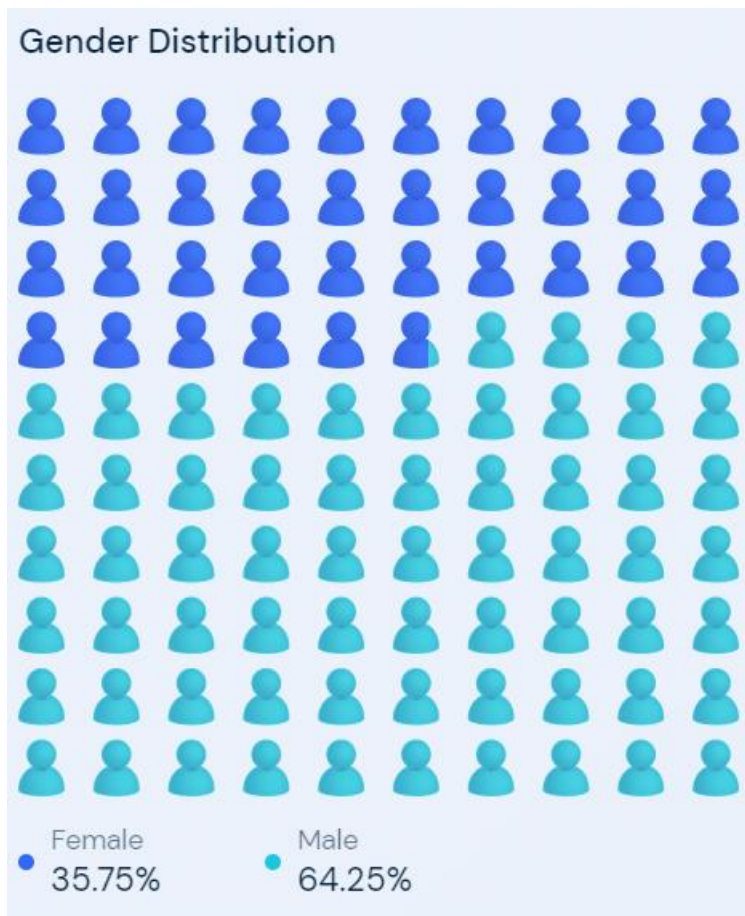
India
46.58% ▼ 3.03%

United States
9.60% ▲ 17.30%

Pakistan
2.81% ▼ 8.54%

Canada
1.94% ▼ 4.10%

Sri Lanka
1.82% ▲ 14.75%

Others
37.24%

Age Group	Percentage
18 – 24	33.47%
25 – 34	32.44%
35 – 44	15.55%
45 – 54	8.82%
55 – 64	5.78%
65+	3.95%

Gender Distribution

Female
35.75%

Male
64.25%

your customer's underserved needs,

Gaana is India's largest commercial music streaming service with over 200 million monthly users. It was launched in April 2010 by Times Internet and provides both Indian and international music content. The entire Indian music catalog is available to users worldwide. Gaana features music from 21 Indian languages including the major languages such as Assamese, Bengali, Bhojpuri, English, Gujarati, Hindi, Kannada, Urdu, Odia, Marathi, Punjabi, Tamil, Telugu, Maithili, Malayalam and other Indian regional languages.

your value proposition,

gaana.com- listen & download latest mp3 songs online. download new or old hindi songs, bollywood songs, english songs…

Q3. Set B. Illustrate the bottom 3 layers of product-market fit pyramid of DropBox offering.   [3]

your target customer:

Dropbox has identified a large target audience: it is estimated that 35% of the U.S. workforce is now freelance, a group that as of 2016 totaled to 55 million people.

your customer's underserved needs,

Free/Paid online cloud storage.

Dropbox uses a freemium business model, where users are offered a free account with a set storage size, with paid subscriptions available that offer more capacity and additional features. Accordingly, Dropbox's revenue is a product of how many users they can convert to their paid services.

Dropbox Basic users are given two gigabytes of free storage space. This can be expanded through referrals; users recommend the service to other people, and if those people start using the service, the user is awarded additional 500 megabytes of storage space. Dropbox Basic users can earn up to 16 gigabytes through the referral program.

your value proposition,

Dropbox is a file hosting service that offers cloud storage, file synchronization, personal cloud, and client software.

Q4. Set A. Create a Lean canvas & Story map for an internet based product that tells stories in an engaging way (audio only) to kids in the age group of 5-10 years.   [3+3]

Lean Canvas:

Problem:

- Kids often struggle to focus on reading books especially long/complex text.
- Parents may not find time and energy to sit with their kids regularly to focus on them.
- One teacher cannot concentrate on all the studens in a class.

Solution:

- An internet based product that tells storis in an engaging audio-only way to kids.
- The product has a good catalog of interesting stories that are appropriate for kids in the age group of 5-10 years.
- Product also offers interactive features that keeps kids engaged.

Key Metrics:

- Number of kids using the product.
- Metrics such as average listening time, drop out rate, no of kids completing the entire audio, peak times, etc
- Parents feedback and reviews.

Unique Value Proposition:

- Convenience of listening to stories anytime.
- Engaging and interactive for kids to develop their listening skills.

Unfair Advantage

- No competition for story telling products to kids.

Channels:

- Partnering with schools to reach out to kids and their parents.
- Social media marketing.
- Paper ads
- Wall posters.

Customer Segments:

- Kids in the age group of 5-10 years
- Parents of those kids
- Schools of those kids.

Cost Structure:

- Content Creation Cost
- Product Development cost
- Maintenance cost
- Marketing and Promotion cost
- Salaries and wages.

Revenue Streams:

- Subscripition fees
- Advertising and Sponsorship
- Licensing and Merchandising
- In-app purchases

Story Map:

User Activities:

- Content Creation
- Product Development
- Marketing/Promotion of the Product

User Tasks

- Gather/Create stories
- Record high quality audio
- Test the user experience
- Promote the product to parents and teachers
- Partner with authors and story tellers
- Collect and analyze feedback

User Stories:
Release 1:

- Create story audio recordings
- Develop play/pause/resume backend feature for the audio.
- Develop login backend feature for the product.
- Develop UI for the story telling product.

Release 2:

- Upload story audio recordings.
- Integrate with UI with play/pause/resume/login backend features.
- End to End testing of the developed product.
- Market the Product to Teachers/Parents
- Market the product in social media.

Release 3 :

- Launch MVP
- Get feedback of users.

Release 4:

- Fix bugs in MVP.
- Develop new feature after analyzing the feedback.

Q4. Set B. Create a Lean canvas & Story map for a product that helps adults learn Indian languages.

[3+3]

Lean canvas:

Problem:

- Lack of software to learn indian language
- English translation is not available
- Between indian laguages translation is not available - like a people of native Tamil wants to learn Bengali

Existing alternative:

- Google translator

Solution:

- Build an online platform to help lerning indian languages from english and other indian native languages

Key metrics:

- Number of international signups to course registrations
- Number of Indians doing course registrations to learn other indian languages
- Which indian languge is learned by most people

Unique value proposition:

- Travellers can get authentic experience of the local area
- Communication between the regions of India will be easier
- Transfusion of cultures

High level concept:

- Become biggest language learning platform

Unfair advantage:

- Indian can contribute to build their own system
- Any person with good knowledge of mother tongue can earn via this
- More international tourist visiting india which gives more tourism

Channels:

- Referrals
- Recommendations
- Marketing
- Offers clubbed with indian hotel and flight bookings

Customer segments:

- Travellers who want to explore both domestic and international
- Artistic people wants to understand the other parts of India

Early adapters:

- Researchers on foreign language
- Explorers, photographers

Cost structure:

- Customer acquisition cost via marketing and offers
- Hosting the software cost
- Professional proof readers cost

Revenue streams:

- Subscription price
- Donations
- Life time value
- Artistic transfusion value

- Revenue
- Gross margin

Story Map

1. User management

- Release 1:
    - o Create new user / signup form
    - o Create login form
- Release 2:
    - o Update profile
    - o Add payment information, recurring payment
- Release 3:
    - o Referral program
- Backlog:
    - o Google account login
    - o Update profile image

2. Learn

- Release 1:
    - o Indian language to english translation
- Release 2:
    - o Between the indian language translation
- Release 3:
    - o Certification program
- Backlog:
    - o Oral tutoring and learn to speak from another person in live sessions

3. Contribute

- Release 1:
    - o Find contributer who has indian language as mother tongue
- Release 2:
    - o Cross learning from one user who has already learnt a language
- Release 3:
    - o Transfusion of art exchange program
- Backlog:
    - o Show some recommened linguistic books and translate them

Q5. Set A. Classify the features of WhatsApp using Kano Model. [2]

Must Have	Wants	Delighters
Sending Messages	Message formatting	Different Media sharing options
Individual Message chatting online	Group chatting	Chatting Stickers and shortcuts
Privacy	Group privacy owned by group creator or owner	Message trace to root or originator
Easy contact import	Voice call	group Voice call
	Video call	group video call
	end to end encyption	Locking chats
		Disappearing messages on time interval
		Control privacy like seen
		Allows reaction on messages

Q5. Set B. Classify the features of YouTube using Kano Model. [2]

Must Haves	Wants	Delighters
Play/Pause/Stop videos	Share videos	Download videos
Upload videos	Comment on videos	Create/Update playlists
Search videos	Like/ Dislike videos	Share playlists
Log in	Modify video quality	Share video link

Q6. Set A. Assume Paytm is at a startup stage. Mention 2 types of MVPs that can be considered for this product. Explain why these 2 MVPs are the most suitable for this product. [2]

Minimum Viable Payment Gateway: The first MVP for Paytm could be a minimum viable payment gateway ehere the focus on building a simple and functional payment gateway that can process transitions quickly and efficiently.

Why its suitable : By building a simple payment gateway, the team can test and validate the most critical feature of their product, which is payment processing.

Minumum Viable Wallet: The focus is on building a simple and secure digital wallet that can store payment information and process transactions.

Q6. Set B. Assume Zoom video conferencing product is at the startup stage. Mention 2 types of MVPs that can be considered for this product. Explain why these 2 MVPs are the most suitable for this product.   [2]

Q7. Set A.

Rivigo: This case study was discussed in the class. This is a logistics company that implemented a relay based system and alleviated the challenges faced by the driver community.

MoveWorks is a product that provides automated IT support to employees of an organization via a chatbot. It helps employees fix issues such as installing a licensed software on your laptop, provide access rights to use an application, etc.

State one metric each for Rivigo and MoveWorks that can be used to measure the value delivered by the product. The metric should be other than the number of users and other than revenue, profit, annual revenue growth . Justify your answer.   [2]

Average Delivery Time

One metric that can be used to measure the value of product is Rivigo's average delivery time. Rivigo's unique technology driven logistics aims to reduce the delivery times significantly as compared to traditional logistics providers. Rivigo's team achieves this by using technology efficiently for real-time tracking, optimized route planning, and effective load management.

MoveWorks -

Employee Productivity

This metric could measure the amount of time and resources saved by using the MoveWork's automation tools.
By streamlining repetitive and time consuming tasks, MoveWork is able to increase the employee's productivity, which would lead to other benefits like increased ob satisfaction for the employees.

Q7. Set B.

Wobot Intelligence is a tool that monitors the activities of employees in food & pharma industry using cameras and analyses the videos captured using Artificial Intelligence to determine if the standard operating procedures are being followed or not in the factory, thus helping organizations to improve compliance to safety and hygiene procedures.

Apna is a software (similar to Naukri.com) that helps blue collar workers to find jobs as delivery boys, in petrol pumps, as carpenters, etc.

State one metric each for Wobot Intelligence & Apna that can be used to measure the value delivered by the product. The metric should be other than the number of users and other than revenue, profit, annual revenue growth. Justify your answer.   [2]

Wobot Intelligence:

metric that measure the value delivered by Wobot intelligence is the number of times Standard operating procedures was not followed after video analysis. This metric would indicate the effectiveness of Wobot intelligence product in maintaining compliance as per safety and hygiene procedures.

Apna:

metric that measure the value delivered by Apna product is the number of blue collar workers who successfully found jobs. This metric would indicate the effectiveness of the product in helping blue collar workers to find jobs.

Q8. Set A. We would like to introduce a Kid's lock for the phone gallery as we don't want children to see all the photos that we have captured. Using the Sprint technique

- Map the usage of the product   [2]
- Identify the top 2 HMW questions (How May We questions) (key questions that need to be answered to make the solution effective)   [2]
- Sketch the User interface of the solution   [2]

Kids lock for phone gallery app.

Usage of the Product:

- The main usage of the product is to introduce a kids lock for phone gallery app.
- This is to prevent kids from seeing all photos that are captured.
- Some photos might not be appropriate for children. Viewing those kinds of photos can be prevented from children using this feature.

Top 2 HMW (How May We Questions):

- How may we make it easy for parents to set up the kids lock for the phone photo gallery app.
- How may we ensure that kid's lock is secure and cannot be easily bypassed.

User interface of the solution:

- User interface cannot be sketched as uploading of images is not possible in Typing only exam. Hence, I would describe how the User Interface would look.
- UI would be simple and intuitive.
- A Kids lock button would be present in the top right corner of the photo gallery app.
- When the parent taps the Kids lock button, a new screen pops up asking to set pin or pattern for the photo gallery.
- Once the pattern/pin is setup, the parent can use the Kids lock feature.
- A setting to mark photos as Kids safe or not.
- Parent can also turn off the Kids lock feature anytime using the PIN/Pattern.

Q8. Set B. We would like to develop a web based news reading software that caters to people with varying interests. Some may be interested in Politics, some in Sports, some in Business, etc. and some may be interested in a combination of these domains. Using the Sprint technique

- Map the usage of the product   [2]
- Identify the top 2 HMW questions (How May We questions) (key questions that need to be answered to make the solution effective)   [2]
- Sketch the User interface of the solution   [2]

1) Map

News Reader -> Read Headlines -> Open first page -> Browse through at a brief
            -> Read Category specific news (politics , business , sports etc) -> Go to required category -> Read main news -> Read others
            -> Read about a specific event (business
quisition,
                              sports event etc)
            -> Bookmark fav news for read later (expires at a timeline)   (i couldnt draw , but assume link to this step from above 2read steps)
            -> Save informative news for use later (i couldnt draw , but assume link to this step from above 2 read steps)

2) How we may?
  a. Categorize news into right domains
  b. how we may stream/recieve realtime news
  c. How we may authenticate real / fake news
  d. How we may identify most read news
  e. How we may design the headlines to be attention seeking?

3) There is no option to upload images for this exam. Hence trying to put together in text format.

Top Bar - NEw Paper Name and Date
Design Progressive pages

Q9. Set A & B are same

Describe a software product that you use regularly at office or for personal use.

    a) Rate the learnability, efficiency & error dimensions of Usability of this product on a scale of 1 to 5. Justify your answer   [3]

    b) Rate the Conceptual design and Information architecture of this product on a scale of 1 to 5. Justify your answer.   [2]

A)   The   software   product   I   would   want   to   rate   is   Notepad++:

i) Learnability:- The basic tasks that a user needs to perform on a notepad softeare are taking notes, writing down tasks and formatting them in a particular for more understandability. All these tasks can be easility performed on notepad++ even by a user who has not used it before as the software is very intuitive. I would give   it   5   out   of   5   for   learnability.

ii)Efficiency- Once user has learned how to perform various tasks on Notepad++, then it is very easy for him to work on it. He can accomplish tasks quicker as it provides many shortcuts to achieve tasks. Again, it   is   5   out   of   5   for   me.

iii) Errors- For someone who is not that familiar with programming an be overwhelmed by the sheer number of options that Notepad++ provides. This leads to a cluttery task bar which sometimes leads to errors unintentionally. Due to this, there are always chances of mistakes on the part of users. So 3 out 5 for this dimension.

B)
Conceptual Design: The conceptual design of Notepad++ is very good. Each tab is placed right where it would be easy and intuitive for the user to comprehend. Arrangment of tabs is key to user friendly interface when a software provides so many features. A 4 out of 5 rating for conceptual design as they can also introduce   option   to   hide   stuff   which   is   not   required   by   specific   users.

Information Architecture:- Notepad++ has a delightful information structure. With all the information placed across the screen in an organised way, it is easy for a user to use it for his purpose. So a rating of 5 out of 5 for this